

Chapter One  
INVENTORY

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## Chapter One

# INVENTORY

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The Master Plan update for Mesa-Falcon Field Airport required the collection and evaluation of information relating to the airport and surrounding area. This information included the following.

- ♦ Physical inventories and descriptions of facilities and services now provided at the airport.
- ♦ Background information pertaining to Maricopa County and the Mesa-Falcon Field environs, as well as the description of the development which has taken place in the vicinity of the airport.
- ♦ Population and socioeconomic information which provides an indication of future development in Mesa and the Phoenix metropolitan area.
- ♦ A comprehensive review of the existing regional plans and studies to determine their potential influence on the

development and implementation of the airport Master Plan.

An accurate and complete inventory is essential to the success of a master plan because the findings and assumptions made in this plan establish the historical base for analysis of future growth and development. Information was obtained through on-site investigations of the airport and interviews with airport management, Fixed Base Operators, tenants and representatives from Mesa, Maricopa County, McDonnell Douglas Helicopter Company and the PAC.

## AIRPORT SETTING

Mesa-Falcon Field Airport is located in the eastern portion of Maricopa County approximately seven miles northeast of downtown Mesa and approximately 18 miles east of the center of Phoenix, Arizona. The airport, which occupies approximately 907



acres, is owned and operated by the City of Mesa. The airport is situated between McDowell and McKellips Roads on the north and south, respectively, and Greenfield and Higley Roads on the west and east, respectively. The primary airport access from the south is provided via Falcon Drive. The northwestern part of the airport property is accessed through Mallory Circle from Greenfield Road. An eastern access point to the airport is provided from Higley Road at the intersection of Falcon Drive. The airport is located four and one half miles north of the Superstition Freeway (Arizona Highway 360), and approximately 14 miles east of Interstate 10. The Vicinity Map, Exhibit 1A, depicts the location of the airport in its regional setting.

Falcon Field is classified in the National Plan of Integrated Airport Systems (NPIAS) as a primary airport and designated as a Reliever Airport. Reliever airports are *"....general aviation airports in metropolitan areas which are intended to reduce congestion at large commercial service airports by providing general aviation pilots with alternative landing areas and providing more general aviation access to the overall community."* Mesa-Falcon Field is one of 15 paved airports within 30 air miles of Phoenix Sky Harbor International Airport and is included among the 15 airports in the Maricopa County Association Of Governments Regional Airport System Plan (MAG RASP). Falcon Field is also included as a primary airport in the State Aviation System Plan (SASP).

Seventeen percent of the 3,461 registered aircraft in Maricopa County (Maricopa Association of Governments Regional Airport System Plan, 1990) are currently located at Falcon Field.

## AIRPORT DEVELOPMENT HISTORY

Mesa-Falcon Field Airport has its beginning in the early days of World War II. President Roosevelt's call for training 100,000 military pilots a year resulted in the establishment of three training bases in the Phoenix area: Falcon Field, Thunderbird I (in Glendale) and Thunderbird II (in Scottsdale). Falcon Field opened for training on September 14, 1941, and was initially assigned the responsibility of training British pilots for the Royal Air Force.<sup>(1)</sup> Initially, the airport did not have any paved surfaces and aircraft took off in any direction depending upon the indication of the wind sock. Later, a portion of the airfield was paved for night landing practice. Apparently this runway was oriented quite near the present orientation but was much shorter in length. After war with Japan was declared, American pilots were also trained at the facility.

Upon termination of military training activities in 1945, and under the provisions of Public Law 109, the Reorganization Plan I of 1947, and the Surplus Property Act of 1944, approximately 600 acres of land containing the airport and facilities was transferred by quitclaim deed to the City of Mesa in August of 1948, for one dollar. Little aviation activity took place at the airport after the war, and in 1956, the City of Mesa leased the airport and responsibility for operating it, to Rocket Power, Inc., a plant that manufactured solid propellants for military use. Pacific Southwest Airlines provided air carrier service to the airport for a short time during this period. In 1965, the City of Mesa terminated its lease agreement and resumed control and operation of Falcon Field.<sup>(2)</sup>



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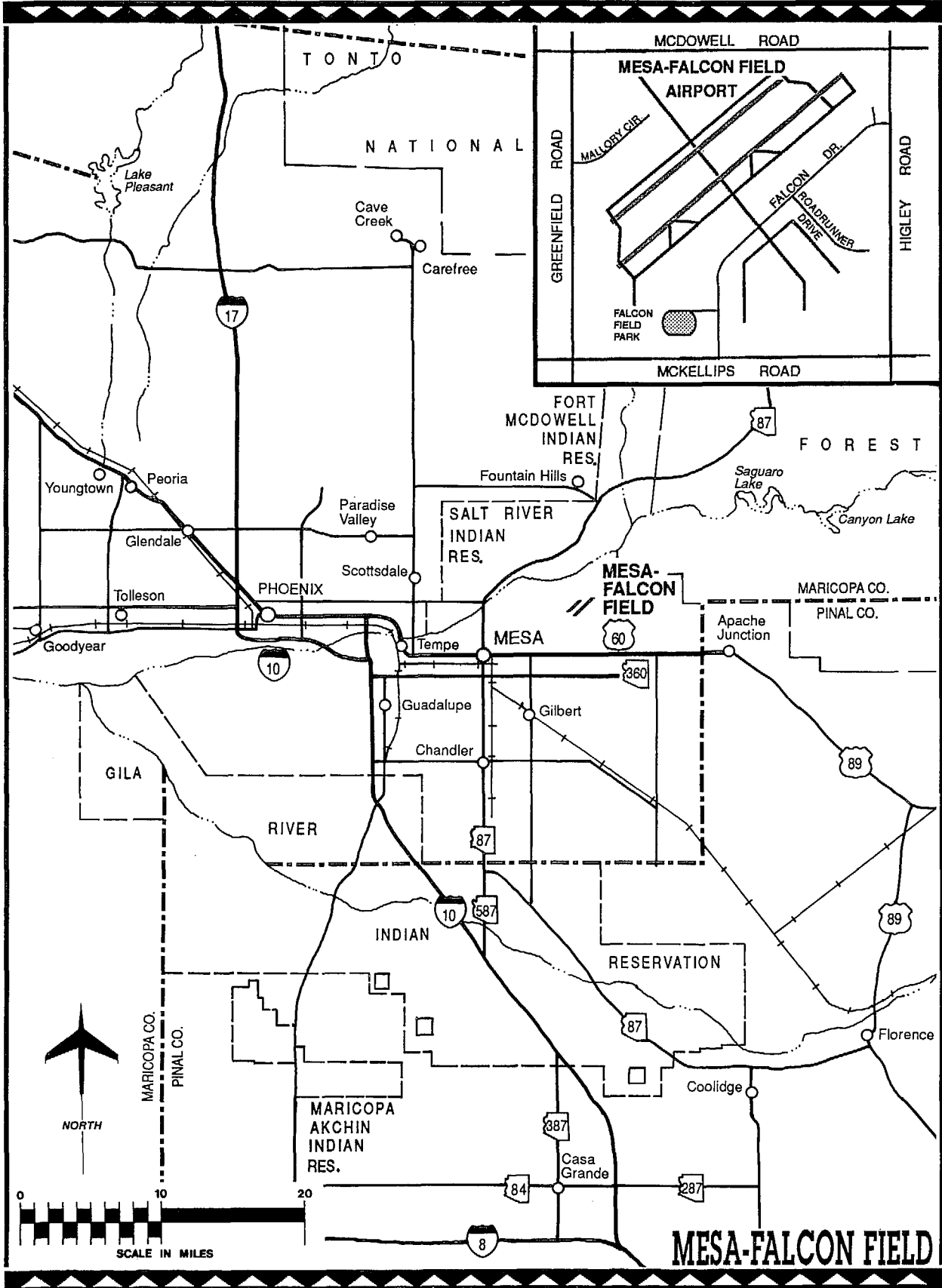


Exhibit 1A  
VICINITY MAP



The initial runway length of 2,600 feet was lengthened to 4,300 and widened to 100 feet during the early 1960's. The runway was extended to its present length of 5,100 feet in 1984.

The major airport improvement projects completed in the past ten years are:

- ♦ Visual Approach Slope Indicator (VASI) on Runway 4R and 22L (1980)
- ♦ Helipad - 50 ft by 50 ft (1984)
- ♦ Parallel Runway 4L-22R, 3,800 by 75 feet (1984)
- ♦ Parallel Taxiway for 4L-22R, 3,800 by 40 feet (1985)
- ♦ Medium Intensity Runway Lights (MIRL), 4L-22R (1985)
- ♦ Replace VASI on Runway 4R-22L and install PAPI on both runways. (1985-86).
- ♦ Runway End Identifier Lights (REIL), Runway 4R-22L (1986)
- ♦ Tiedown Apron, north of Runway 4L-22R (1986)
- ♦ Helipad 1 and Helipad 2, 10,000 lbs, 60 ft by 60 ft (1989)

Numerous utility extensions and improvements as well as flood control and drainage projects were also completed during this period.

## EXISTING AIRPORT FACILITIES

Airport facilities are classified as either airside or landside. Airside facilities are those that are directly associated with aircraft operations. Runways, taxiways, navigational aids and airport lighting are examples of airside facilities.

Landside facilities primarily consist of terminal buildings, hangars, aircraft parking aprons, fuel storage facilities and auto parking.

The existing airport facilities at Mesa-Falcon Field are illustrated on Exhibit 1B. The airport meets the current FAA criteria to be classified in Approach Category B (aircraft) with approach speeds less than 121 nautical miles per hour) and Airplane Design Group II (aircraft with wingspans less than 79 feet in length). The appropriate Airport Reference Code (ARC) is B-II.

## RUNWAYS AND TAXIWAYS

Mesa-Falcon Field airport has parallel asphalt runways, oriented northeast-southwest, and designated as Runways 4L-22R and 4R-22L. Runway 4R-22L is the primary runway, 5,100 feet in length and 100 feet in width with a single wheel (SW) loading strength of 38,000 pounds and 50,000 pounds dual wheel (DW). Runway 4L-22R is 3,800 feet in length, 75 feet wide and has SW strength rating of 12,000 pounds. Pavement strengths of all the airport movement areas were evaluated during this master plan and are recorded in greater detail in Appendix E.

Runway 4L-22R and 4R-22L have gradients of .26 and .55 percent, respectively, and are separated by a centerline to centerline distance of 700 feet. The highest point on the runway is 1,391.6 feet Mean Sea Level (MSL). The ARC for Runway 4L-22R is B-I while the ARC for Runway 4R-22L is B-II.

Each runway is equipped with a full parallel taxiway, one parallel taxiway located south of Runway 4R-22L and the parallel taxiway for Runway 4L-22R located to the north of the runway. The airport's taxiways and their dimensions are listed in Table 1A.



**TABLE 1A**  
**Taxiway Dimensions**  
**Mesa-Falcon Field**

<u>Taxiway</u>	<u>Type</u>	<u>Length (Ft)</u>	<u>Width (Ft)</u>
A-1	Taxiway	150	40
A-2	Taxiway	725	40
A-3	Taxiway	150	50
A-4	Taxiway	350	50
A-5 <sup>(1)</sup>	Taxilane	585	50
B-1	Taxiway	1,450	75
B-2	Taxiway	200	75
B-3	Taxiway	130	75
B-4	Taxiway	600	75
B-5	Taxiway	150	75
B-6 <sup>(1)</sup>	Taxilane	775	50
B-7 <sup>(1)</sup>	Taxilane	1,900	50
B-8 <sup>(1)</sup>	Taxilane	650	50
B-9 <sup>(1)</sup>	Taxiway	800	50
B-10 <sup>(1)</sup>	Taxilane	1,350	50
C-1	Taxiway	125	40
C-2	Taxiway	625	40
C-3	Taxiway	150	50
C-4	Taxiway	150	50
D-1	Parallel	2,300	50
D-2	Parallel	2,050	50
D-3	Parallel	550	50
E-1	Parallel	1,850	40
E-2	Parallel	1,850	40
West <sup>(1)</sup>	Taxilane	1,025	50
McDonnell Douglas	Access Twy	850	110
H-1	Hi-speed Twy	200	50
H-2	Hi-speed Twy	200	50
H-3	Hi-speed Twy	200	50
H-4	Hi-speed Twy	200	50
P1 <sup>(1)</sup>	Taxilane (private)	400	30
P2 <sup>(1)</sup>	Taxilane (private)	450	40

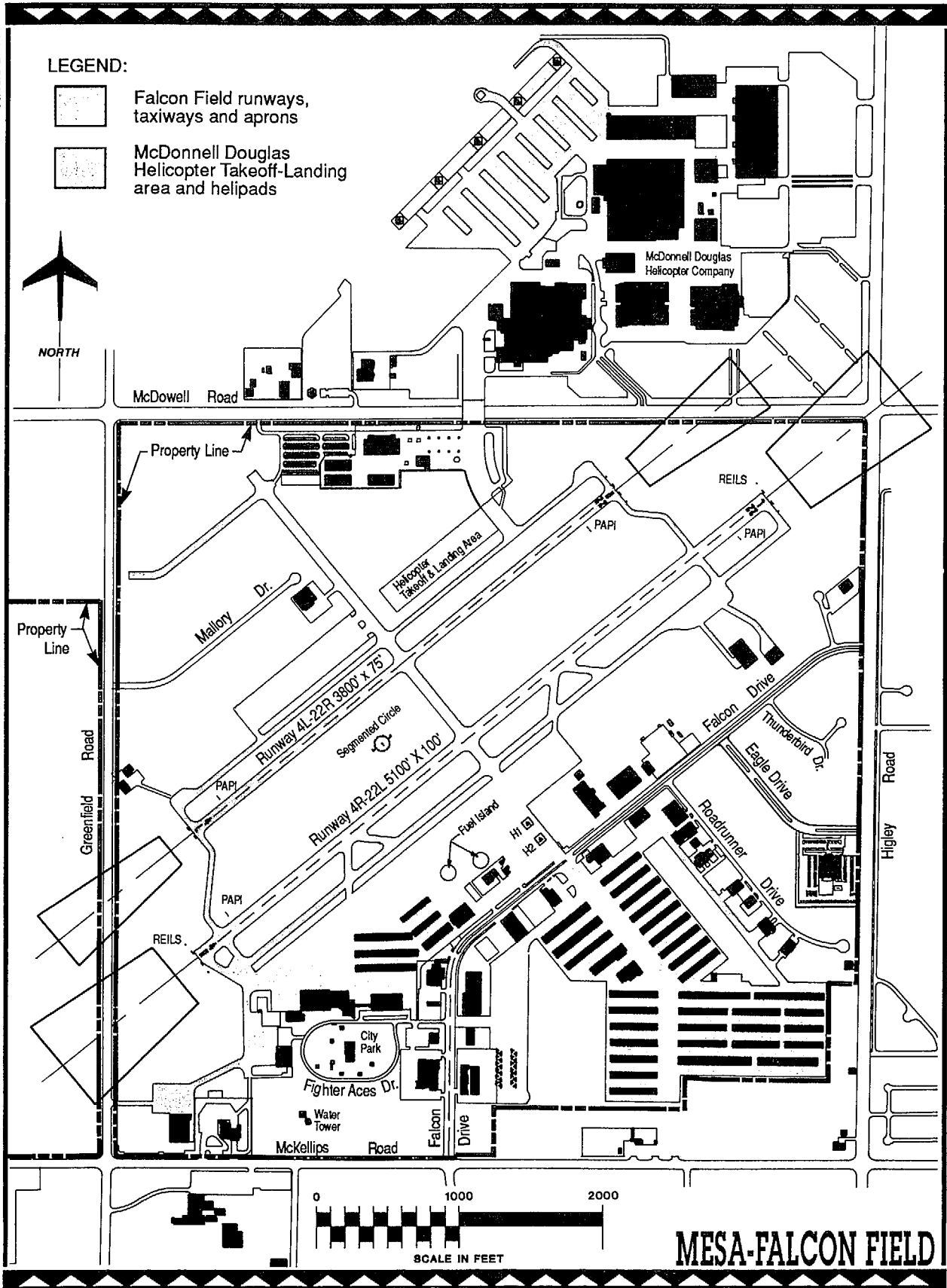
NOTES: <sup>(1)</sup> These taxiways/taxilanes are not lighted.

## NAVIGATIONAL AIDS

Navigational aids (navaids) provide direction, range and/or position information to pilots.

Nav aids are usually classified as either enroute or terminal. The enroute navaids provide point to point navigation, while terminal navaids provide approach and landing







guidance. Some nav aids can be used for both the enroute and terminal purposes.

### Enroute Air Navigational Aids

Enroute nav aids are comprised of two basic types of equipment, the VOR (very high frequency omnidirectional range) and the VORTAC (very high frequency omnidirectional range/tactical air navigation). The VOR is normally linked with a DME (distance measuring equipment) to provide nearly identical service as a VORTAC. The VOR transmits radio signals every degree to provide 360 individual courses from the transmitting facility. The DME provides range to the station in nautical miles. As a VHF (very high frequency) facility, the VOR is limited to line-of-sight transmissions with the range affected by the altitude of the aircraft. The VORTAC is similar to a VOR with DME.

A series of electronic airways connect the nav aids to each other as well as terminal aids. Separated into low altitude (1,200 feet to 18,000 feet mean sea level [MSL]) and high altitude (18,000 to 45,000 feet MSL), these airways have specific alignments and designations to reduce confusion during flight planning and air traffic control. The low altitude airways are referred to as Victor Airways and the high altitude airways as Jet Routes. These will be discussed later in the chapter under Airspace and Air Traffic Control.

The Salt River Very High Frequency Omnidirectional and Tactical Navigation System (VORTAC) located 10 air miles west of the airport, is the primary enroute aid to aircraft operating in the Phoenix metropolitan area. This nav aid is used to direct aircraft to the Phoenix area from all directions and serve in the instrument procedures designed for many of the airports in the Salt River Valley.

### Terminal Area Navigation and Landing Aids

Terminal nav aids are those located on or near the airport. Used primarily for instrument approach procedures, terminal nav aids at Falcon Field include a nondirectional radiobeacon (NDB), while the landing aids include a precision approach path indicator (PAPI).

Scottsdale NDB is a low frequency radiobeacon used in an instrument approach procedure designed for Falcon Field. It can also be used to navigate to the airport. The NDB can be used in weather conditions where cloud ceilings are 800 feet and visibility is as low as one mile (dependant upon the type of aircraft flying the approach). Approaches can only be made to the airport where aircraft must circle to land on the appropriate runway.

The Rio Salado NDB, previously used for Sky Harbor Airport is planned for relocation to Mesa-Falcon Field in the near future. This installation would provide the opportunity for a nonprecision instrument approach capability to the airport.

PAPI's are a system of lights located near the approach end of the runway which provide visual descent guidance to the pilot, relative to a predetermined glideslope angle. The glideslope angle is three and one-half degrees to all Runways.

### LIGHTING

A variety of lighting aids are available at Falcon Field to facilitate airport identification, approach, landing, and taxiing operations at night or in adverse weather conditions. These systems, categorized by function, are described below.



## Identification Lighting

The location and presence of an airport at night is universally indicated by an airport beacon. At Falcon Field, the airport beacon is located on top of the Airport Traffic Control Tower (ATCT). The beacon is equipped with an optical system that projects two beams of light, one green and one white. A lighted wind sock is combined with a segmented circle near midfield between the runways. The wind sock and segmented circle provide pilots with a visual indication of surface winds as well as basic information concerning airport traffic patterns.

## Approach Lighting

Approach lighting systems (ALS) are used in the vicinity of runway thresholds as adjuncts to electronic navigational aids for the final portion of instrument approaches or visual guides during nighttime operations. There are no approach lighting systems installed at Mesa-Falcon Field Airport.

**Runway and Taxiway Lighting:** Both runways are equipped with Medium Intensity Runway Lights (MIRL) and all taxiways (with the exceptions noted in Table 1A) with Medium Intensity Taxiway Lighting (MITL). The ends of Runway 4R-22L are equipped with Runway End Identification Lights (REIL). REIL's provide positive identification of the end of the runway by a system of synchronized strobe flashers, located on each side of the runway end. The Airport Traffic Control Tower controls the airport lighting when operational. Remote pilot control of airport lighting is not available.

## TERMINAL FACILITIES

In addition to the airfield facilities just described, general aviation landside facilities are essential to the daily operation of Mesa-Falcon Field. Terminal facilities are located

on both sides of Falcon Drive, from the airport entrance to the east exit to Higley Road as well as north of Runway 4L-22R. The various elements describing the facilities are categorized into three major groups, outlined in the paragraphs to follow: Airport Support, Fixed Base Operators and Airport Tenants. Exhibits 1C and 1D illustrate the facilities described below (the actual names of the companies that lease or own the buildings/hangars are listed in the Appendix).

## AIRPORT SUPPORT FACILITIES

### General Aviation Terminal Building

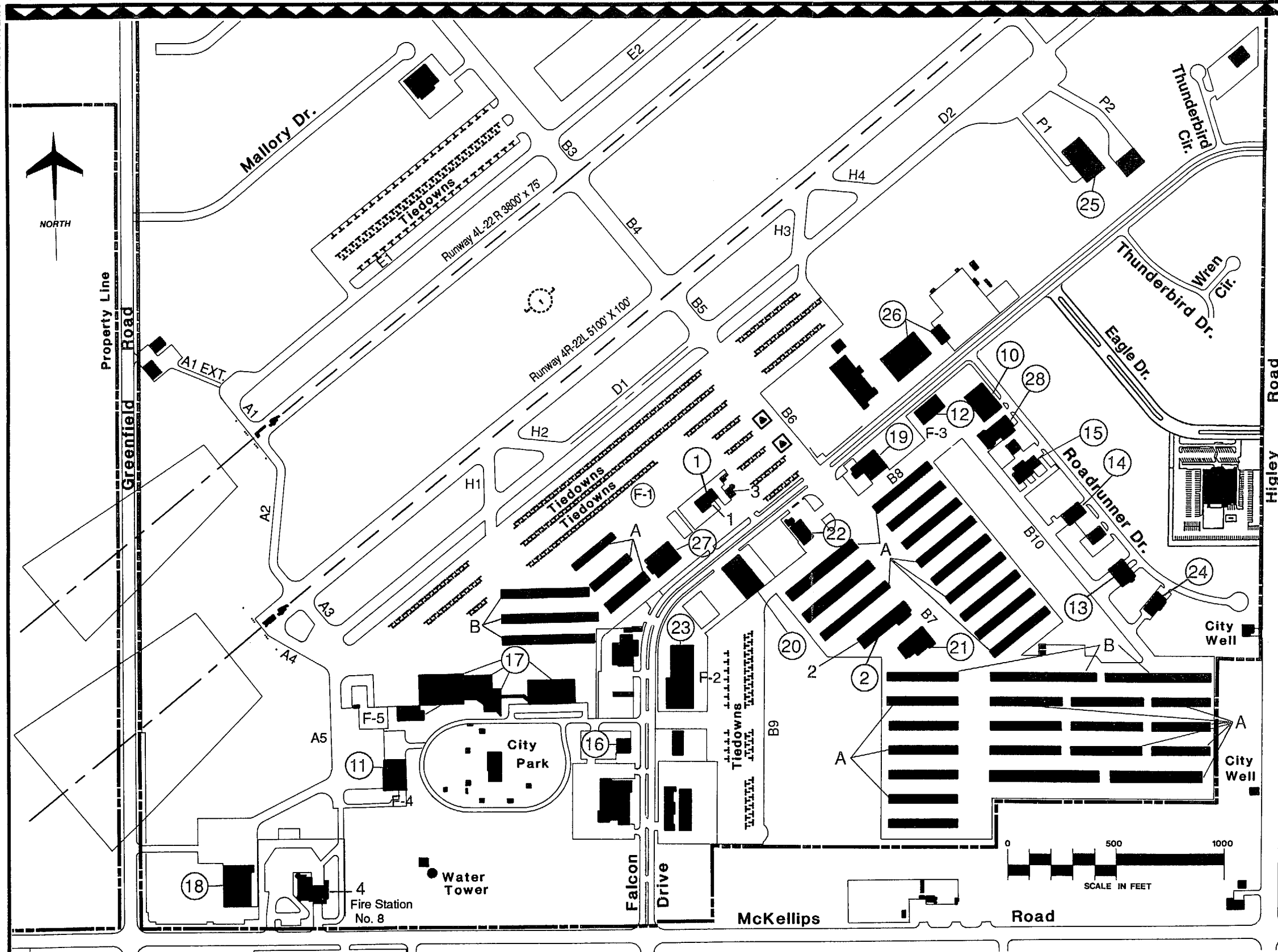
As illustrated on Exhibit 1C, the general aviation terminal building is located to the east of Taxiway B6, near midfield, and is accessed from Falcon Drive. The major tenant in the terminal building is Airport Administration. Adjacent to the Terminal Building is a parking lot which has 50 automobile parking spaces, consisting of 41 public, 4 employee and 5 rental car ready spaces. There are two rental car leasing agencies on the airport. Master Leasing is located in the Terminal Building and Mesa Leasing is located in the Cactus Aviation FBO facility. Also leasing a portion of the Terminal Building is Falcon Fuels. Falcon Fuels leases approximately 1,200 square feet of the facility.

A diesel generator that supplies emergency power to the terminal building and for airfield lighting is located adjacent to the terminal building near the base of the tower.

### Airport Maintenance

Airport Maintenance, with four personnel assigned, is located in T-Hangar L-2, south of Falcon Drive. This facility also contains the maintenance vehicles (three light trucks, a tractor and sweepers) and shops. City owned buildings, roads and public grounds (the City

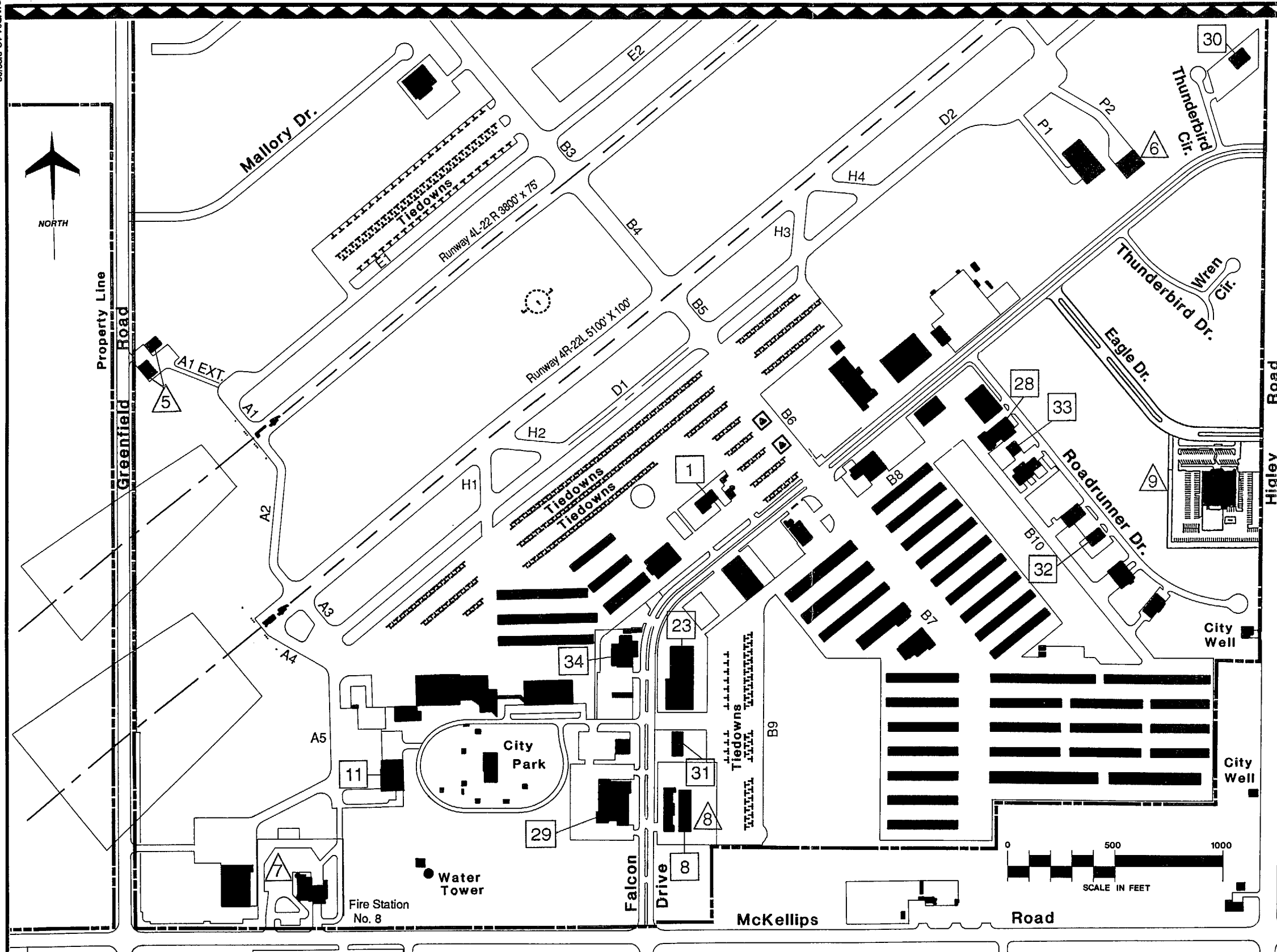




- LEGEND:**
- AIRPORT SUPPORT FACILITIES**
- 1 General Aviation Terminal
  - 2 Airport Maintenance
  - 3 Air Traffic Control
  - 4 Aircraft Rescue and Firefighting Facility
  - F1-F5 Underground Fuel Storage Areas
  - A T-Hangars
  - B Covered Tiedowns
- FIXED BASE OPERATIONS AND AVIATION RELATED INDUSTRIES**
- 10 Air Response
  - 11 Air Evac Helicopter
  - 12 AZ Rotorcraft / U.S. Turbine
  - 13 AZ Aircraft Accessories
  - 14 AZ Aircraft Interiors
  - 15 AZ Aviation
  - 16 AZ Civil Air Patrol
  - 11 Cactus Aviation
  - 17 Champlin Fighter Museum
  - 18 Confederate Air Force
  - 19 Fly-N-Buy
  - 20 Eagle Air
  - 2 Empire Machinery
  - 26 Falcon Avionics
  - 1 Falcon Fuels
  - 11 Flight Services
  - 20 Flight Trails Helicopter
  - 21 Helicopter Support
  - 22 Vacant
  - 19 Kompakt Mobile Wash
  - 23 KRN
  - 19 Little Flyers
  - 24 Lycon
  - 25 Marsh Aviation
  - 26 Royal Aviation Services
  - 15 Sadler
  - 27 SAS Executive Air
  - 10 Westec

**MESA-FALCON FIELD**





- LEGEND:**
- △ GOVERNMENT FACILITIES
    - 5 Maricopa County Sheriffs Department
    - 6 City of Mesa Hangar
    - 7 Mesa Police Substation
    - 8 FAA Airways Facilities Sector Field Office
    - 9 U.S. Post Office
  - AIRPORT TENANTS
    - 29 A.M. Coury
    - 30 Anzio Landing
    - 8 Calamigos Ranch
    - 8 Embry Riddle
    - 8 Falcon Corporate Center
    - 31 Falcon Roost Restaurant
    - 29 Great American Investment
    - 29 Honeywell
    - 32 J.C. Johnson Equipment
    - 8 McDonnell Douglas Travel
    - 1 Master Leasing Rent-a-Car
    - 11 Mesa Leasing Rent-a-Car
    - 33 Munier
    - 8 Recker Miles Marinas
    - 34 Southwestern Eye Centers
    - 23 TRW
    - 28 What's New ? Cute Loot

**MESA-FALCON FIELD**



Park) on the airport are maintained by the City's Public Works Department.

### **Air Traffic Control Tower**

The airport has had an operational airport traffic control tower (ATCT) since 1980. In 1984, the FAA constructed a new tower and assumed responsibility for airport traffic control from a private operator which had been operating the tower since that time. The ATCT, illustrated on Exhibit 1C, is located adjacent to the General Aviation Terminal Building. The facility is staffed by 15 personnel from 6:00 am to 9:00 pm daily. There are 10 automobile parking spaces assigned to the FAA ATCT.

### **Aircraft Rescue and Firefighting Facility**

Under current FAA guidelines, the airport is not required to have Aircraft Rescue and Firefighting (ARFF) equipment and trained personnel. However, a City of Mesa Fire Station, Fire Station #8, is located on the airport on McKellips Road at the southwest corner of airport property.

The ARFF dedicated primary equipment available at the station are Falcon #8 and Engine #8. Falcon #8 is a 1991 Oshkosh T-1500. It has a 1,000 gallons-per-minute (GPM) pump capacity and carries 1,500 gallons of water, 195 gallons of aqueous film forming foam (AFFF) concentrate and 700 pounds of dry chemical extinguishing agent. There is a two-man team assigned to this vehicle.

Engine #8 is a 1982 Van Pelt, with a 1,500 GPM pump that carries 750 gallons of water, 25 gallons of ATC (Alcohol Type Concentrate). A four man crew is assigned to this vehicle (two of whom are paramedics).

### **Airport Security**

The City of Mesa maintains a police sub-station on the airport at the southwest corner of the field, adjacent to Fire Station No. 8 (Exhibit 1C). This substation is accessed through McKellips Road. On-airport security during normal operating hours is provided by the Mesa Police Department and the airport maintenance personnel. After normal hours the airport is patrolled by vehicles and personnel from the sub-station.

### **Fuel Facilities**

Fuel storage and dispensing is conducted by Falcon Fuels and Cactus Aviation. Fuel service, 100 Low Lead, Jet A and 80/87 Octane, is available on a 24 hour basis and is delivered by truck as well as at the fuel island located on the main apron adjacent to the Terminal Building. The fuel island has 100 Low Lead. Jet A is delivered only by truck.

The fuel storage facilities, including private fuel storage, are located in underground storage tanks at various locations around the airport as indicated on Exhibit 1C. The fuel storage capacity, types and age of the tanks are listed in Table 1B.



**TABLE 1B**  
**Fuel Storage Inventory**  
**Mesa-Falcon Field**

<u>Storage Area<sup>(1)</sup></u>	<u>Size (Gal)</u>	<u>Type Fuel</u>	<u>Operator</u>	<u>Age of Tank</u>
<u>Fuel Island F1</u>	10,000	100 Low Lead	Falcon Fuels	1989
	10,000	100 Low Lead	Falcon Fuels	1989
	12,000	Jet A	Falcon Fuels	1989
<u>Area F2</u>	12,000	100 Low Lead	Evans Management	1978
	12,000	Jet A	Evans Management	1978
<u>Area F3</u>	12,000	100 Low Lead	Evans Management	1978
	12,000	Jet A	Evans Management	1978
<u>Area F4</u>	12,000	100 Low Lead	Cactus Aviation	1989
	10,000	Jet A	Cactus Aviation	1989
<u>Area F5</u>	12,000	Jet A	SAS Executive Air	1980
	12,000	100 Low Lead	SAS Executive Air	1980
	12,000	100 Low Lead	SAS Executive Air	1980
	12,000	None	SAS Executive Air	1980
	12,000	None	SAS Executive Air	1980

NOTE: <sup>(1)</sup> Refer to Exhibit 1C for location.  
Source: Airport Records.

## GOVERNMENT AGENCIES

There are several federal, county and City agencies located on Falcon Field which are discussed in the paragraphs that follow.

### Maricopa County Sheriff's Department

The Maricopa County Sheriff's office maintains the County helicopter, an MD 500, at a 3,500 square foot facility located on the north side of the parallel Runway 4L-22R. This facility is accessed from Greenfield Road. The Sheriff's Department has plans to expand to three helicopters and possibly a twin engine piston aircraft in the near future. This

department occupies the 3,000 square foot facility located adjacent to the Sheriff's hangar. These existing facilities are depicted on Exhibit 1C.

### City of Mesa

The City of Mesa maintains two separate facilities at Falcon Field. A police substation, located at the southwest corner of the airport property, is collocated with Fire Station No. 8 of the City of Mesa Fire Department. The police substation employs approximately 135 personnel and provides parking for approximately 62 police vehicles. The City of Mesa also owns and operates a hangar located on Falcon Drive at the northeast end



of the airport terminal area. Both of these facilities are illustrated on Exhibit 1C.

#### **FAA Airways Facilities Sector Field Office**

The FAA Airways Facilities Sector Field Office (FAA AFSFO) leases office space in the Falcon Corporate Center building near the entrance to Falcon Field. The AFSFO, which employs eight people, plans to move to new facilities on the airport in the future.

#### **FIXED BASE OPERATORS AND AVIATION-RELATED INDUSTRIES**

There are several Fixed Base Operators (businesses providing a wide variety of

pilot/aircraft services) or businesses providing an aviation specialty service, located on Mesa-Falcon Field. A brief description of each is outlined in Table 1C and their locations are depicted on Exhibit 1C. Businesses sub-leasing or closely connected with the major tenant listed in Table 1C, are listed separately, however, the information concerning size, employees, parking, etc, has been combined under the major tenant or lessor and is not duplicated. The company names are depicted in Appendix A.



**TABLE 1C**  
**Fixed Base Operators and Aviation-Related Industries**  
**Mesa-Falcon Field**

<u>Company</u>	<u>Service</u>	<u>Size (SF)<sup>(1)</sup></u>	<u>Major Access</u>	<u>Emp<sup>(2)</sup></u>	<u>TD</u>	<u>Auto</u>	<u>Bldg.#</u>
Air Response	Large Acft maint	15,225	Falcon Dr.	2	12	12	4949
	Aerial Disp. del						
Air Evac	Air Ambulance	NA	Fighter Aces Dr.	NA	NA	NA	4610
AZ Aero Tech	Airframe &	9,100	Falcon Dr.	4	3	11	4927
	Propulsion School						
AZ Aircraft Acc	Acft accessory repair	8,200	Roadrunner Dr.	2	7	10	5103
AZ Aircraft Int.	Aircraft Upholstery	6,000	Roadrunner Dr.	6	3	4	5025
AZ Aviation	Flt. training, acft rental	4,750	Roadrunner Dr.	1	0	0	5035
AZ CAP	Air search and rescue	3,300	Falcon Dr.	20-50	6	36	4730
Cactus Aviation	FBO: acft/engine repair	13,500	Fighter Aces Dr.	15	15	22	4610
	fuel sales, charter, rental, fuel sales						
Champlin Fighter Mus.	Museum	21,500	Fighter Aces Dr.	8	0	75	4636
		4,000					
		27,300					
Confederate Air Force	Acft Restoration	24,700	McKellips Road	10-20	0	0	4410
Eagle Air	Air ambulance	NA	Falcon Dr.	NA	NA	NA	4805
Falcon Avionics	Avionics sales and repair	NA	Falcon Dr.	6	NA	NA	5000
Falcon Fuels	Fuel sales and service	NA	Falcon Dr.	NA	NA	NA	4810
Flight Services	Flt training, acft rental	NA	Fighter Aces Dr.	NA	NA	NA	4610
Flight Trails	MDHC assembly	19,425	Falcon Dr.	29	5	12	4805
Fly-N-Buy	Aircraft sales	N/A	Falcon Dr.	1	NA	NA	4901B
Kompakt Mobil Wash	Acft cleaning, detail	NA	Falcon Dr.	NA	NA	NA	4766
KRN	Acft parts sales	29,925	Falcon Dr.	16	0	38	4753
Little Flyers	FBO: acft maint, rental instruction	12,500	Taxiway B7	8	0	8-10	4901A
Lycon	Acft engine overhaul	5,500	Roadrunner Dr.	4	0	4	5117
Marsh Aviation	Acft modification, repair, engine repair	18,900	Falcon Dr.	58	25	40	5060
Royal Air	Engine overhaul/repair	25,000	Falcon Dr.	22	0	30	5,000
	acft sales	3,750					
Sadler	Aircraft builder	NA	Roadrunner Dr.	1	NA	NA	5035
SAS Executive Air	FBO: sales, instruction training, rental, fueling charter, etc.	16,400	Falcon Dr.	35	33	43	4766
Westec	Helicopter leasing, airtaxi, charter	10,300	Roadrunner Dr.	3-6	0	10	4949

NOTES: (1) Square footage estimates are based upon under roof from aerial photography.  
(2) Does not include part-time employees.  
NA = Not applicable (or data included in another businesses' data).  
Emp = Employees.  
TD = Tiedowns.  
Auto = Automobile parking spaces.



## AIRPORT TENANTS

### McDonnell Douglas Helicopter Company

A major tenant and neighbor at Falcon Field is the McDonnell Douglas Helicopter Company (MDHC). When MDHC acquired the Hughes Helicopter plant in California, it subsequently moved the plant, in 1984, to its new location in Mesa. The plant has become a leading employer in the metropolitan area with 4,500 employees at the facility north of the airport. McDonnell Douglas produces the AH-64 Apache, MD-500 and NOTAR aircraft as well as the medium caliber Chain Gun (an automatic cannon). Major facilities at the plant north of the airport are the Apache assembly line plant, administration building, engineering center and a 340,000 square foot Advanced Development Center.

MDHC leases property on the airport from the City in support of its flying and

manufacturing operations. The Light Helicopter Facility is located north of Runway 4L-22R and is accessed from McDowell Road. The Light Helicopter Facility is connected to the main plant by the McDonnell Douglas Taxiway. An overpass was constructed across McDowell Road in order to facilitate the construction of this taxiway. The main plant and the Light Helicopter Facility are illustrated in Exhibit 1D.

### Other Airport Tenants

At Falcon Field, there are many airport tenants involved in non-aviation related businesses. In Table 1D and Exhibit 1C, the major facilities occupied by these tenants are depicted. Businesses occupying space in an office building are listed, however, the data concerning size, employees, parking, etc, is combined under the building owner/lessor and the data is not duplicated. The list of companies and/or lessors is contained in the Appendix.

**TABLE 1D**  
**Airport Tenants**  
**Mesa-Falcon Field**

<u>Tenant</u>	<u>Type of Business</u>	<u>Size (SF)<sup>(1)</sup></u>	<u>Major Access</u>	<u>Emp.<sup>(2)</sup></u>	<u>Auto Parking</u>	<u>Bldg#</u>
A.M. Coury	Office Leasing	26,275	Falcon Dr.	2	60	4710
Anzio Landing	Restaurant	5,100	Thunderbird Cir.	45	65	2613
Embry Riddle	Aeronautical Univ	NA	Falcon Dr.	2	NA	4711
Falcon Corp Ctr	Office Leasing	19,250	Falcon Dr.	2	133	4711
Falcon's Roost	Restaurant	5,000	Falcon Dr.	9	40	4731
JC Johnson Equipment	Sales, service, towing/lifting equipment	3,750	Roadrunner Dr.	1	5	5061
Master Leasing	Auto Rental	NA	Falcon Dr.	1	NA	4810
Mesa Leasing	Auto Rental	NA	Fighter Aces Dr.	1	NA	4610
SW Eye Centers	Ophthalmologists flight exams	10,775	Falcon Dr.	4	24	4760
TRW	Airbag mfg	NA	Falcon Dr.	6	NA	4753

NOTES: <sup>(1)</sup> Square footage is based upon under roof from aerial photography.

<sup>(2)</sup> Does not include part-time employees.

<sup>(3)</sup> This company is no longer leasing the property. Building is scheduled for removal.

NA Not applicable



## HANGARS AND SHADES

The airport has a wide variety of hangars, which are classified as conventional, T-hangars and covered tiedowns (shade hangars). There are 22 conventional hangars (11 of these hangars are privately owned) 18 of which are used for aviation related services. The airport presently has 313 nested T-Hangars (four of these are executive sized hangars), hanging 320 aircraft. The City owns and rents 306 of

these T-Hangars. There are 116 shade hangars owned by the City. Approximately 20 percent of the hangar spaces are located on the main apron while the remainder are located south of Falcon Drive in the area referred to as the South Apron area.

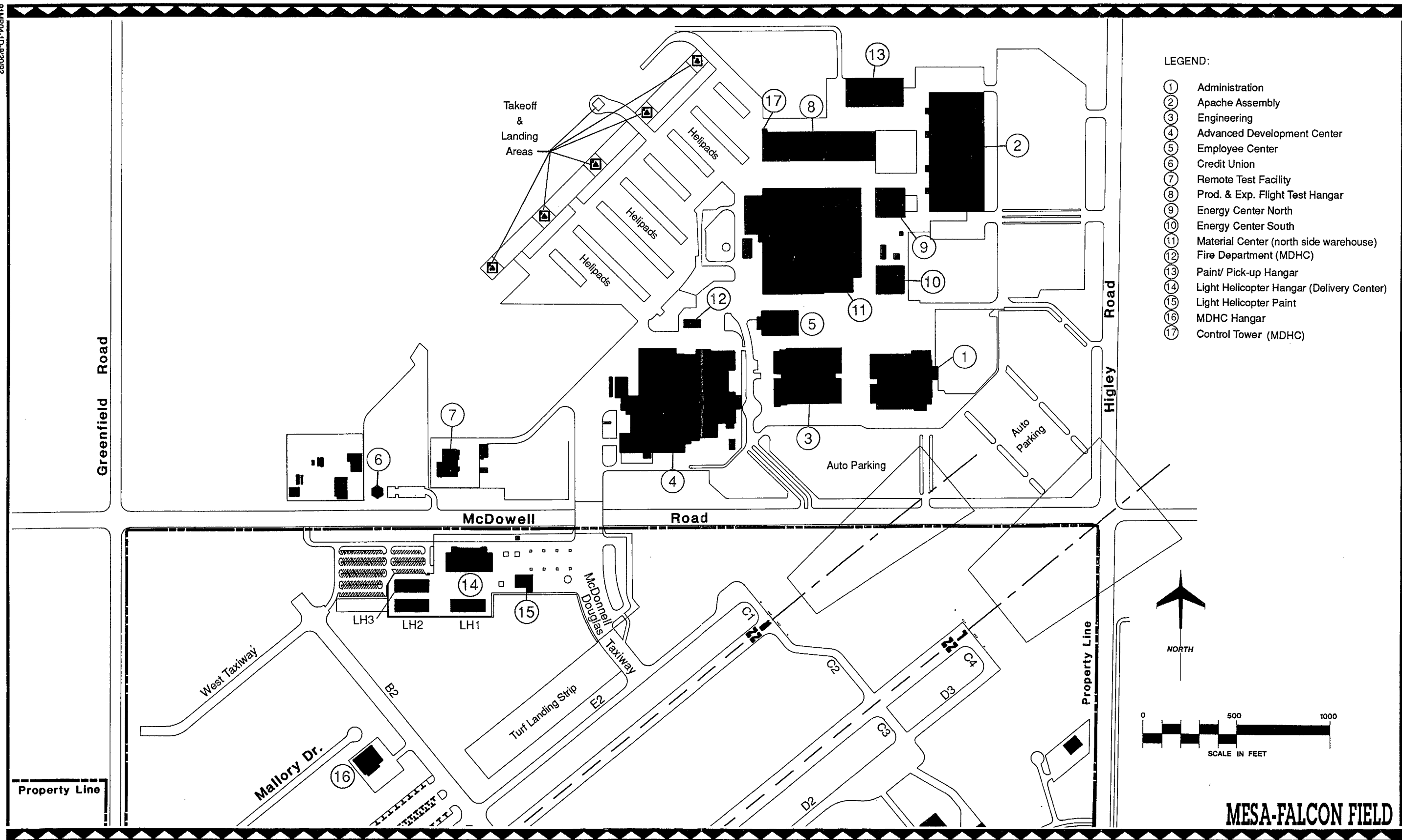
All of these facilities are illustrated on Exhibits 1C and 1D. The current hangar and shade status and existing occupancy rates are listed in Table 1E.

**TABLE 1E**  
**Existing Hangars and Tiedowns**  
**Mesa-Falcon Field**

	<u>Available</u>	<u>Sq Ft</u>	<u>Leased</u>	<u>Vacant<sup>(3)</sup></u>	<u>Percent Occupied</u>
<b>HANGARS</b>					
Conventional Hangars <sup>(1)</sup>	18	305,975	53 <sup>(2)</sup>	NA	NA
Main Apron T-hangars	24	24,100	24	0	100%
Main Apron Shade Hangars	57	49,800	46	11	80%
South T-hangars	289	407,770	289	0	100%
South Shade Hangars	59	51,200	48	11	81%
Total T-hangars	313	431,870	320	0	100%
Total Shade Hangars	116	101,000	94	22	81%
Total Conventional	18	305,975	53	NA	NA
	<u>Available</u>	<u>Private<sup>(4)</sup></u>	<u>Occupied</u>	<u>Open</u>	<u>Percent Occupied</u>
<b>TIEDOWNS</b>					
Main Apron Tiedowns-Local	203	33	69	101	50%
Main Apron Tiedowns-Transient	67	49	NA	NA	NA
South Apron Tiedowns	48		4	44	9%
North Apron Tiedowns	90		0	90	0%
Total Local Tiedowns	341				
Total Transient Tiedowns	67				

- NOTES:
- (1) Does not include conventional hangar space being utilized by non-aviation related businesses.
  - (2) The number of aircraft reported stored in conventional hangars by those responding to survey questionnaire.
  - (3) As of July 1, 1991.
  - (4) Some of these tiedowns are not located on paved apron surfaces.
- NA Not applicable.







## APRON

The Main Apron located south of the runways is approximately 107,100 square yards in size and has approximately 270 aircraft tiedown positions, 67 of which are transient tiedowns. The North Apron, located adjacent to Runway 4L-22R, is capable of supporting 90 aircraft tiedowns. Another 48 tiedowns are located adjacent to Taxiway B8 and the T-Hangar area south of Falcon Drive.

There are 82 private tiedown areas located throughout the airport in proximity to conventional hangars which are used by the owners/lessors of those hangars (not including the tiedowns assigned to the Superstition Air Service FBO). Most of these tiedowns are paved, but some are on turf surfaces (the larger aircraft do not have tiedown cables). The number of tiedowns and the existing occupancy rate at the time of the survey is illustrated in Table 1E.

## OPERATIONS AND BASED AIRCRAFT

In the past, Falcon Field has usually dominated the statistical figures for based aircraft. Only recently have the County's statistical records indicated a greater number of based aircraft at another metropolitan airport. The largest number of based aircraft at Falcon Field was recorded in 1986 (784), however, this figure has been declining ever since. Table 1F illustrates the historical based aircraft at the airport since 1981.

The airport's operations have been up and down during the past ten years. More recently, aircraft operations have been on the increase and the latest figures indicate a rise of nearly 27 percent in the annual operations compared with a year ago. This rise has been attributed in part to the operations conducted at the McDonnell Douglas Helicopter Company (which are included in the airport's tower records) and also due to the increase in training activity that is being conducted at the airport. The historical operations figures are also indicated for the airport in Table 1F. The year 1990 will be the base year for historical and forecast purposes.

TABLE 1F  
Historical Aircraft Activity  
Mesa-Falcon Field

Year	Based Aircraft <sup>(1)</sup>	Operations <sup>(2)</sup>			
		Itinerant	Local	Total	Instrument <sup>(3)</sup>
1980	N/A	139,081	109,329	248,410	>1,000
1981	767	107,330	96,974	204,304	>1,000
1982	774	96,910	80,548	177,458	>1,000
1983	782	99,894	83,491	183,385	2,000
1984	743	94,472	82,437	176,909	2,000
1985	768	98,115	86,861	184,976	2,000
1986	784	92,325	89,036	181,361	2,000
1987	692	78,870	87,356	166,226	2,000
1988	682	73,414	73,687	147,101	2,000
1989	673	72,297	87,564	160,861	2,000
1990	643	75,899	127,786	203,685	1,969

NOTES: (1) Based aircraft derived from airport records recorded in December of each calendar year.  
(2) Airport records from Barton Tower, 1980-83; FAA Tower, 1984-present.  
(3) Terminal area forecasts, FAA 1980-1989. 1990 is count from Phoenix TRACON.



## UTILITIES

The availability and capacity of utilities serving the airport are important factors in determining the development potential of the airport property, as well as the land immediately adjacent to the facility. Of primary concern in the inventory investigation is the availability of water, sewer, electricity, and natural gas.

Water is supplied by the City of Mesa through 16 inch lines that enter the airport from McKellips, Greenfield and McDowell Roads. The main airport water service is supplied from McKellips Road. Four main lines from the McKellips service line enter the airport: a 6 inch waterline serves the Mesa Police Substation and Fire Station No. 8, a 12 inch waterline supplies the water tower, an 8 inch waterline serves the Fighter Aces Drive area and a 12 inch line serves the Falcon Drive facilities. The existing water system also includes City wells located at two locations adjacent to Higley Road on airport property (see Exhibit 1C). The existing system of water lines and service appears adequate to support future expansion.

Electricity is provided by the Salt River Project and serves all of the facilities on the airport. An emergency diesel generator is located adjacent to the ATCT and Terminal building which will produce emergency power for the airfield lighting and the airport beacon.

City of Mesa provides natural gas to Mesa-Falcon Field through a four inch service line along McKellips Road ( a six inch service line is available along Higley Road). Smaller (two inch) service lines provide gas to the Police Substation/Fire Station No. 8, Fighter Aces Drive, Falcon Drive and Thunderbird Drive. The Terminal, Marsh Aviation and Anzio Landing are the only facilities along Falcon Drive with gas service.

The City of Mesa provides some wastewater service to the airport through two major

sewer lines along Greenfield and McKellips Road. A 15 inch vitrified clay pipe (VCP) along Greenfield Road enters the airport at Mallory Drive and serves the McDonnell Douglas Light Helicopter Facilities located adjacent to McDowell Road. From the 12 inch VCP line on McKellips Road, two eight inch VCP lines provide service to Fighter Aces Drive and Falcon Drive. An eight inch sewer line also serves Thunderbird Drive and Eagle Drive. The septic tank system, once the primary wastewater system utilized at the airport, serves those facilities located along Roadrunner Drive and other facilities not adjacent to the existing sewer service.

## AIRSPACE AND AIR TRAFFIC CONTROL

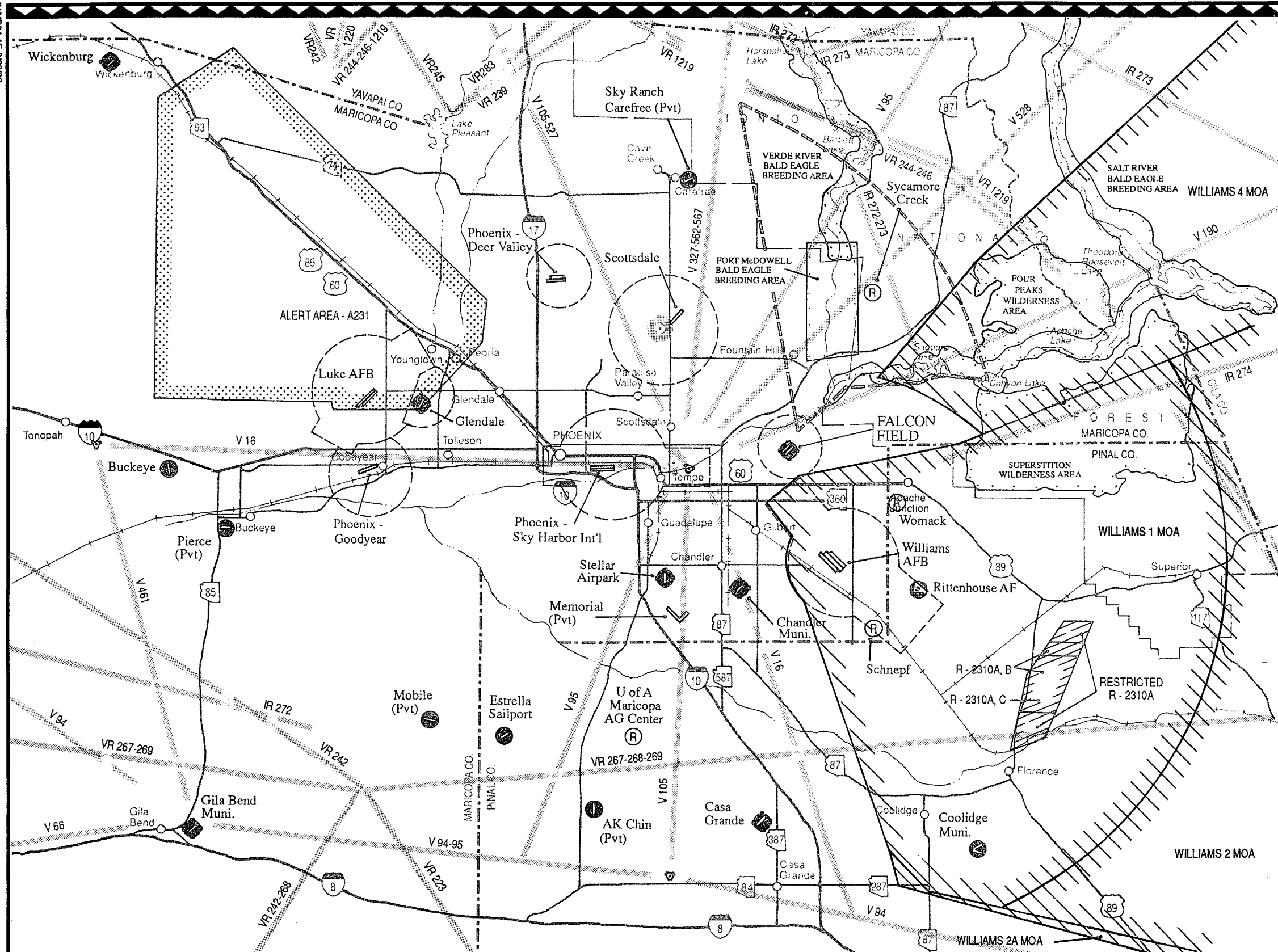
An analysis of airspace is necessary in determining the operational interaction among the various facets of airspace such as airways, instrument and visual flight rules, controlled airspace and airport traffic areas. Exhibit 1E depicts the airspace structure in the Mesa area.

## AIRSPACE SETTING

As depicted on Exhibit 1E, Mesa-Falcon Field Airport is part of a complex metropolitan airspace system that includes several private and public airports. Several public, private and military airports are located in the vicinity of Mesa-Falcon Field Airport. Of the airport's illustrated on the exhibit and in Table 1G, three facilities have a direct influence on Falcon Field airspace: Williams Air Force Base (WAFB) to the south, Sky Harbor Airport to the west and McDonnell Douglas Heliport located adjacent to Falcon Field.

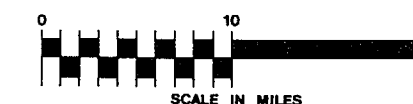
Of the active public airports in the vicinity, two airports are of primary importance to activity at Mesa-Falcon Field: Scottsdale Municipal Airport (14 air miles to the





LEGEND:

- Hard surface runways 1500ft. to 8000ft. in length
- Hard surface runways greater than 8000ft.
- Hard Surface runways with fuel service
- Private
- VORTAC
- Non-Directional Radiobeacon
- Victor Airways
- Military Training Routes - VFR
- Military Training Routes - IFR
- Control Zone / Airport Traffic Area
- Alert Area
- Restricted Area
- MDHC Development Flight Test Area
- MOA-Military Operations Area
- Wilderness Area



MESA-FALCON FIELD



northwest) and Chandler Municipal Airport (12 air miles to the southeast). The primary runways for these airports are oriented northeast to southwest, therefore most traffic

flow is parallel to and does not present a significant conflict with Mesa-Falcon Field Airport.

**TABLE 1G**  
**Airports in the Local Area**  
**Mesa-Falcon Field**

<u>Airport</u>	<u>Type</u>	<u>Public/ Private</u>	<u>Runway Length (Ft)<sup>(1)</sup></u>	<u>Lighted</u>	<u>Location (Air miles/Dir)</u>
Chandler Municipal	GA	Public	4,400	Yes	12/SSW
Glendale Municipal	GA	Public	5,300	Yes	29/W
Luke Air Force Base	MIL	Private	10,000	Yes	34/W
Memorial Airfield	GA	Public	8,500	No	15/SW
Phoenix-Goodyear	GA	Public	8,500	Yes	32/W
Phoenix-Deer Valley	GA	Public	8,200	Yes	23/NW
Papago Army Air Field	MIL	Private	3,500	Yes	12/W
Rittenhouse Auxiliary	MIL	Private	5,200	No	16/SE
Scottsdale Municipal	GA	Public	8,200	Yes	14/NW
Schnepf	GA	Private	3,200	No	15/SE
Sky Harbor International	AC	Public	11,000	Yes	14/W
Stellar Airpark	GA	Public	4,000	Yes	13/SW
Sycamore Creek	GA	Private	3,000	No	13/NNE
Williams Air Force Base	MIL	Private	10,400	Yes	9/SSE
Womack	GA	Private	1,300	No	9/SE

**NOTES:**

<sup>(1)</sup> The length of the longest runway is depicted.

AC = Air Carrier

GA = General Aviation

MIL = Military

Air mile = a nautical mile (6,076 feet)

Source: Phoenix Sectional Aeronautical Chart, May 30, 1991.

Flights into Mesa-Falcon Field are conducted using both Instrument Flight Rules (IFR), and Visual Flight Rules (VFR). Instrument Flight Rules are those that govern the procedures for flights when the weather is below prescribed VFR minimums. Typically, VFR minimums in controlled airspace are established at a visibility of at least three miles and a ceiling height that will ensure that

the aircraft can remain 500 feet below the clouds and at a minimum 800 feet pattern altitude. Visual Flight Rules, the predominant method of operating at the airport, govern the procedures for conducting flights under visual conditions or conditions when the weather is at or above prescribed VFR minimums. The normal weather conditions in the area provide the ability for



aircraft to operate under VFR conditions nearly 99 percent of the time.

### **McDonnell Douglas Helicopter Company**

The company conducts approximately 17,992 helicopter operations annually, a figure that should remain relatively constant for the next five years. Of this number, approximately 14,576 are AH-64 Apache operations, 2,464 are MDHC-500 operations and 952 are training operations. Aircraft airborne operations are controlled by the ATCT at Falcon Field, while ground operations are controlled by MDHC from a 55 foot tower located adjacent to the takeoff and landing area on the main McDonnell Douglas facility.

### **Williams Air Force Base**

Williams Air Force Base (WAFB), located approximately 9 miles south-southeast of the airport within the city limits, has a military/civilian population of approximately 4,000 personnel. One of the primary pilot training bases in the United States Air Force, WAFB conducted approximately 511,312 flying operations in 1990. Utilizing the T-37 and the T-38 aircraft trainers, WAFB conducts both local and area training activities in the Military Operating Areas north, east and south of the airbase. WAFB has been selected for closure by the United States Air Force, however, it may be a few years (estimated closure is in FY1993) before the base actually is turned over to civilian authorities. It is anticipated that the number of operations conducted at WAFB will continue to decline during the period prior to actual closure. Military flights are scheduled to cease in 1992.

### **TERMINAL CONTROL AREA**

Mesa-Falcon Field Airport lies within the Phoenix Terminal Control Area (TCA), as illustrated in Exhibit 1F. This airspace

requires specific arrival and departure procedures as well as operable avionics equipment for aircraft operating within the TCA. Maneuvering in the TCA may require excessive vectoring and sequencing resulting in delays (which is costly, especially for larger aircraft that burn more fuel). The TCA is developed around Sky Harbor International Airport (centered on the Salt River VORTAC) and consists of controlled airspace extending upward from the surface to specified 10,000 feet MSL, within which all aircraft are subject to the operating rules, pilot and equipment requirements, specified for TCA's.

All aircraft operating within the TCA must be equipped with two-way radio capable of communication with air traffic control agencies, an operable VOR or TACAN receiver (for IFR operations) and an operable radar beacon transponder with automatic altitude reporting equipment. Aircraft that do not meet these requirements cannot enter the TCA airspace (air traffic control agencies may authorize a deviation from the altitude reporting equipment if the request for deviation is received at least one hour prior to entering the TCA).

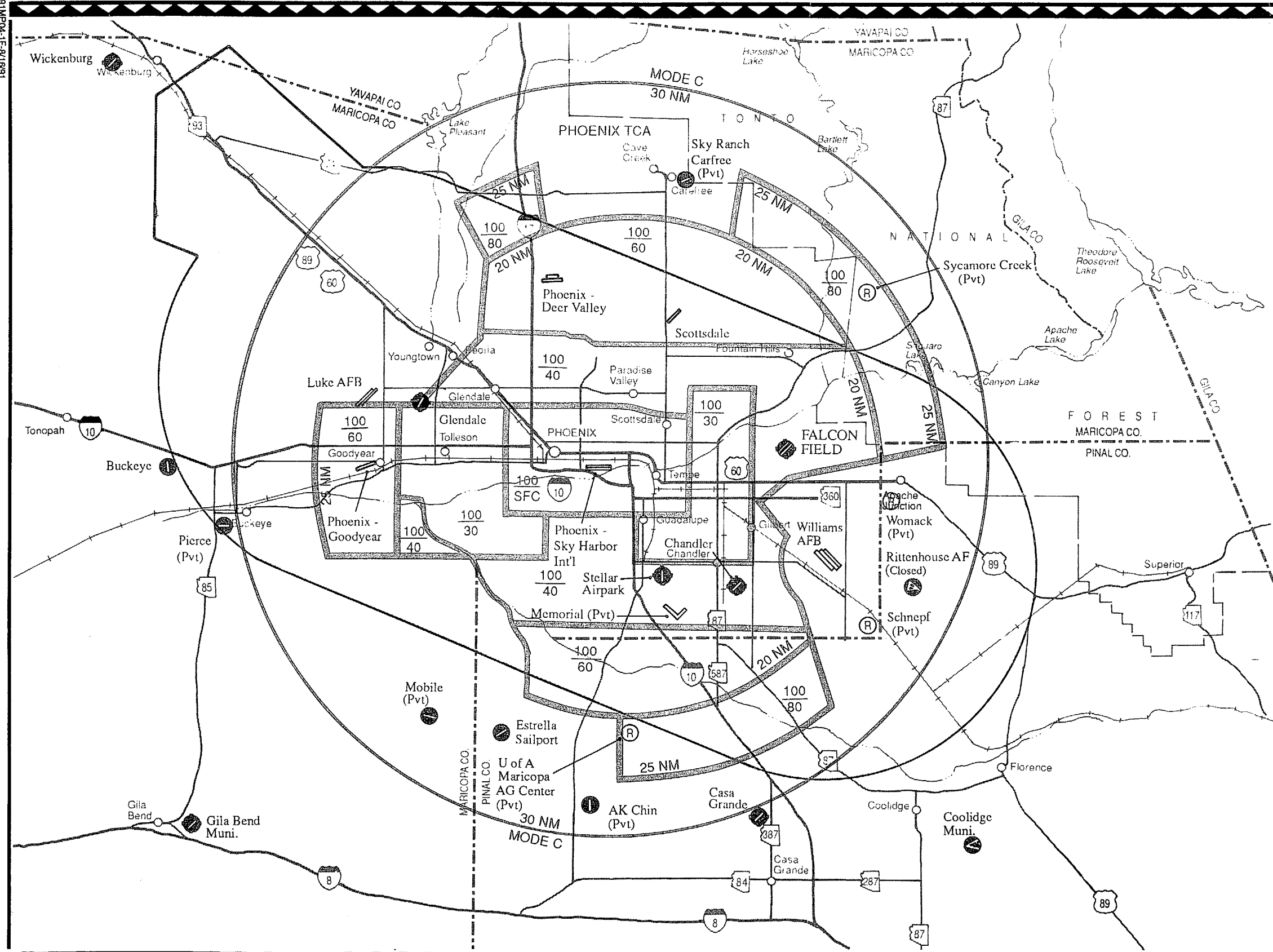
With the exception of the TCA airspace within the Sky Harbor Airport traffic area, the floor of the TCA is 3,000 feet MSL. Aircraft can avoid the TCA requirements by remaining below this altitude (or above 10,000 feet MSL) in order to fly VFR to any of the airports within the TCA airspace. However, arriving aircraft must have radio contact with an air traffic control agency even though they are operating below the TCA airspace. Pilots operating below the TCA airspace are encouraged to use established VFR corridors in or around the TCA.

### **INSTRUMENT PROCEDURES**

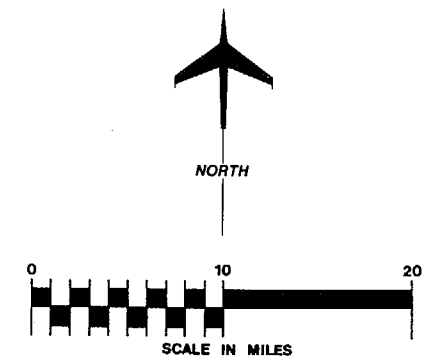
Aircraft operating on an IFR flight plan, whether in actual instrument meteorological conditions or not, are governed by the



91MPOA-1F-8/1991



- LEGEND:
- Hard surface runways 1500ft. to 8000ft. in length
  - Hard surface runways greater than 8000ft.
  - Hard Surface runways with fuel service
  - Private
  - TCA - Terminal Control Area
  - Mode C
  - Tracon Area



MESA-FALCON FIELD



required instrument procedures. Most all air carrier, business jets and military operations are conducted under IFR procedures. Published procedures for instrument approaches outline the required flight paths and altitudes.

Most civil aircraft enroute to Mesa-Falcon Field traverse one of the enroute airways of the Federal Airway system. Many use Victor Airways, which are corridors eight miles wide between 1,200 and 18,000 feet altitude and provide aid in cross-country flight planning and navigation. Each is a compass reading extending between two VOR and/or VORTAC navigational aids. Albuquerque Air Route Traffic Control Center (ARTCC) and Los Angeles ARTCC control aircraft to the limits of Phoenix Terminal Radar Approach Control (TRACON), as illustrated on Exhibit 1F.

Phoenix TRACON controls these aircraft to within the airport traffic area then "hands" the aircraft off to the air traffic control tower (ATCT) at Mesa Falcon Field. Aircraft are vectored through the TCA to the final approach fix of the published approach. At Falcon Field, this typically places the aircraft on the final approach to Runway 4R or 22L.

Though Missed Approach Courses are used less frequently, these courses are established for safety purposes when a landing cannot be made. Aircraft executing a missed approach to Falcon Field will make a climbing right turn to 5,500 feet MSL on a heading of 210 degrees and the Salt River VORTAC 147 degree radial and hold.

## AIRPORT TRAFFIC AREA

The presence of the airport traffic control tower at Mesa-Falcon Field Airport dictates the presence of the Airport Traffic Area. This area consists of airspace within a horizontal radius of five statute miles from the geographic center of the airport extending

from the surface up to, but not including, an altitude of 3,000 feet above the elevation of the airport. Thus, pilots arriving at Mesa-Falcon Field during tower operation relay their intentions over the tower frequency, 124.6 MHz. A pilot must be "cleared" by the controller before entering the Airport Traffic Area. The tower controls visual arrivals and departures from the airport during operating hours. The traffic patterns are depicted on Exhibit 1G.

The airport's traffic patterns are to the northwest of the runways and the pattern for Runway 4R-22L overlaps the pattern for Runway 4L-22R. The traffic pattern altitudes are 2,200 feet mean sea level (MSL) Runway 4L-22R and 2,700 feet MSL for Runway 4R-22L. Helicopters landing at Falcon Field follow the standard traffic pattern for fixed wing but at an altitude of 1,700 feet MSL. An alternate route that is used by based helicopters for arrival and departures to the south is also indicated on Exhibit 1G.

Operations are also conducted from the McDonnell Douglas Helicopter Company takeoff and landing area north of the runways. Apache and MD-500 helicopters perform functional test, operational tests as well as training operations to the northeast of the airport in the McDonnell Douglas designated areas. The MD-500's also practice auto-rotation training at the turf takeoff and landing area, north of Runway 4L-22R.

Operations conducted by WAFB do have an impact on the airport traffic area at Falcon Field. The VFR airport traffic pattern airspace at Mesa-Falcon Field overlaps the IFR airport traffic pattern airspace of Phoenix-Sky Harbor International Airport and WAFB. This factor, although important in airspace analysis, does not necessarily imply that an airspace conflict exists. However, in order to decrease the potential for an airspace conflict with WAFB, the VFR traffic patterns for both runways at Falcon Field are located north of the parallel runways. <sup>(7)</sup>



T-38 aircraft utilize the arrival and departure routes leading to the Military Operating Areas north and east of the airport, however, their altitudes approaching Falcon Field are well above the airport traffic area. T-37 aircraft do not use the northern arrival departure routes as all of their training activity is conducted in areas to the south and southeast of the airport or in the local traffic pattern.

## **OTHER AIRSPACE**

### **Military Operating Areas**

Other airspace areas in the vicinity of the airport and depicted on Exhibit 1E, are Military Operating Areas (MOA's) located north and east of the airport. These airspace areas are reserved for military use and serve as caution areas for civil aircraft or areas where flight restrictions may be imposed. The Williams Two and Three MOA's are used by Air Force students between sunrise and sunset weekdays at 7,000 feet MSL and 11,000 feet MSL, respectively. Williams 3A, located approximately 75 air miles east-southeast of Mesa-Falcon Field Airport, begins at 100 feet absolute ground level and extends upward to but not including, 11,000 feet MSL.

The Williams 4 MOA is located northeast of Falcon Field and is used by the McDonnell Douglas helicopters as well as the military at WAFB. These reserved airspace areas may influence the through flight of aircraft operating at the airport.

### **McDonnell Douglas Test Areas**

McDonnell Douglas uses airspace in the area north and east of the airport to conduct training as well as functional test and evaluation. During most of the experimental flight tests a radio frequency telemetry link must be maintained out to a distance of 25

miles from the McDonnell Douglas facility. The McDonnell Douglas Flight Test Area is illustrated in Exhibit 1E. The plant's helicopters also use the William 4 MOA.

### **National Monuments and Wildlife Refuges**

The Mesa-Falcon Field area also has several national monuments and wildlife areas north and east of the airport that are illustrated on Exhibit 1E. The takeoff and landing of aircraft within these areas is prohibited and aircraft are requested to maintain altitudes of at least 2,000 feet above ground level (AGL) of the highest elevation when flying over these areas.

## **SOCIOECONOMIC CHARACTERISTICS**

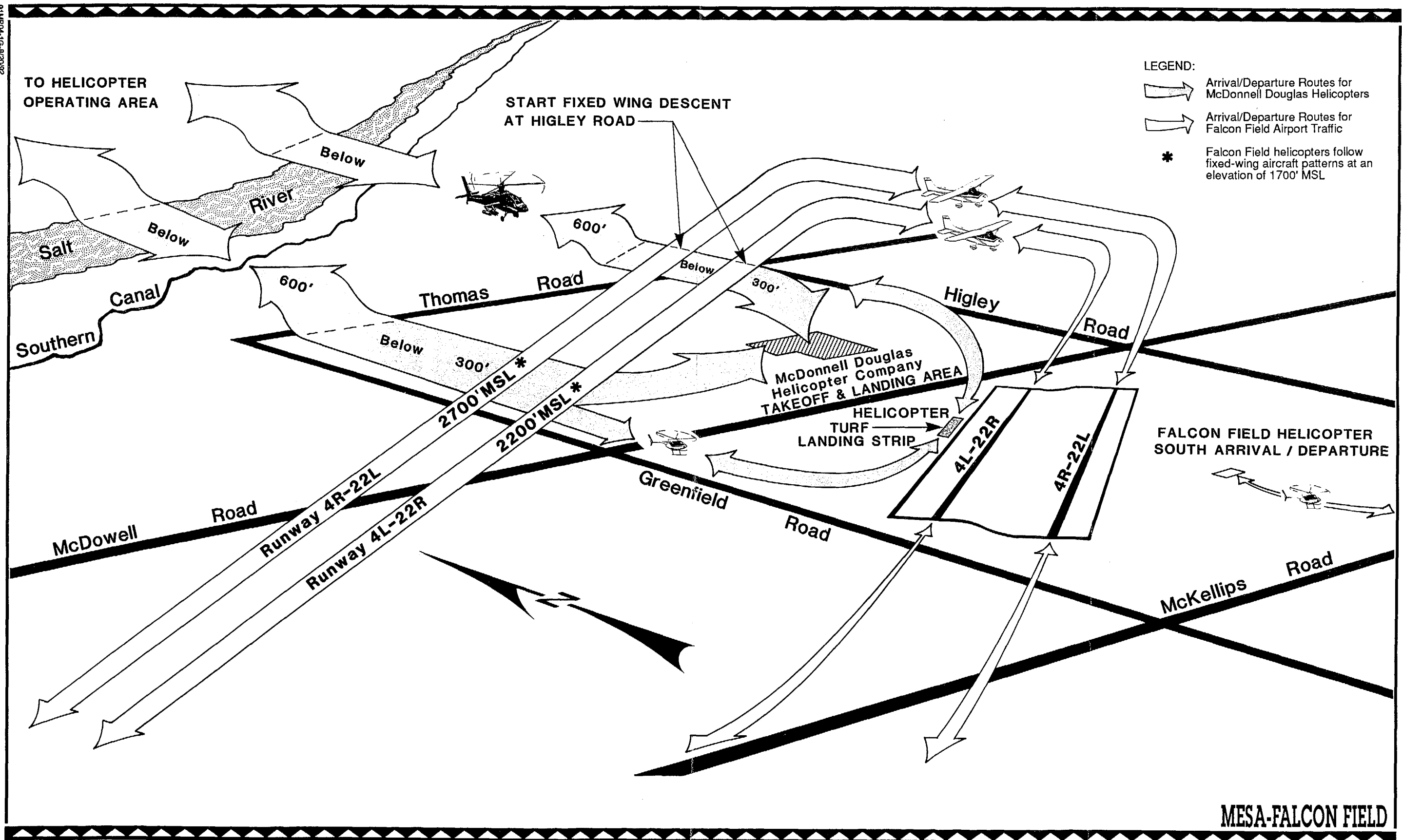
A variety of historical and forecast socio-economic information relating to Maricopa County (Phoenix Metropolitan area) and the City of Mesa, was collected for use in various elements of the Master Plan. This combined information is essential to determining air transportation service level requirements, as well as forecasting the number of based aircraft and operations at the airport. These forecasts are normally keyed to the economic strength of the region and its ability to sustain a strong economic base over an extended period of time. This type of data provides valuable insights into the trends and character of the community.

### **POPULATION**

Information on population in Mesa, the Maricopa Association of Governments region (MAG) and the State was obtained from the Arizona Department of Economic Security and the MAG. Table 1H depicts historical population trends for the State, Maricopa County and Mesa.



91MPD-1G-B/2092





Among cities with populations in excess of 100,000, Mesa was recognized as the fastest growing city in the United States during the past decade. Maricopa County has been the primary growth area for the State for more than 25 years. In the past ten years, the County's population grew at an annual rate of 4.1 percent while Mesa's growth during the same period nearly doubled at an average

annual growth of 7.6 percent. In each ten year period, Mesa's population has grown at a faster rate than the County and the State. Forecasts prepared by MAG in 1989 indicate that the Southeast area of the County will continue to increase its population share within the County to the year 2000, increasing from a 31.8 percent share in 1989 to 35.8 percent in 2000.

**TABLE 1H**  
**Historical Population**  
**Mesa-Falcon Field**

<u>Year</u>	<u>Arizona</u>	<u>Annual Rate(%)</u>	<u>Maricopa County</u>	<u>Annual Rate(%)</u>	<u>Mesa</u>	<u>Annual Rate(%)</u>
1940	499,261	--	186,193	--	7,224	--
1950	749,587	5.0	331,770	7.8	16,790	13.2
1960	1,302,161	7.4	663,510	10.0	33,772	10.1
1970	1,775,399	3.6	971,228	4.6	63,049	8.7
1980	2,718,425	5.3	1,509,262	5.5	163,594	10.0
1986	3,302,300	3.5	1,903,900	4.3	249,505	8.7
1987	3,452,600	4.6	1,998,700	4.9	268,065	7.4
1988	3,551,500	2.8	2,055,400	2.8	272,095	1.5
1989	3,654,700	2.9	2,116,500	2.9	277,860	2.1
1990	3,655,228	3.4	2,130,400	4.1	288,091	7.6

**NOTES:**

Sources: Population data, period 1940-1980 and 1990, U.S. Bureau of the Census; Population data for 1986 to 1989 for Mesa, Maricopa County and Arizona, Arizona Department of Economic Security - Population Statistics Unit, February 1990.

Annual Rate = Annual percentage rate of population gain during the period. Ten year periods for 1950, 1960, 1970, 1980 and 1990; one year periods for 1986 through 1989.

**EMPLOYMENT**

**Maricopa County**

Maricopa County's percentage of the State's personal income total is approximately 77 percent. The County also has the highest per

capita income in the State as well as a total personal income growth rate that exceeds both the State and national averages. The largest industrial sector, Services, accounts for 28.9 percent of the County's labor force while Retail Trade (17.7 percent) and Government (12.4 percent) are the next largest



employment sectors in the County. Maricopa County is bordered by the Arizona counties of Yavapai to the north, Gila and Pinal to the east and southeast, Pima to the south and Yuma and La Paz to the west. Table 1I depicts the statistical breakdown of the percentage employment within the standard industrial sectors of Maricopa County.

**TABLE 1I**  
**Employment Structure Comparisons**

<u>Employment Sector</u>	<u>Percent</u>		
	<u>Mesa<sup>(1)</sup></u>	<u>Maricopa County<sup>(2)</sup></u>	<u>Arizona<sup>(3)</sup></u>
Agri & Mining	1.5	1.9	7.2
Construction	6.1	6.1	5.0
Manufacturing	14.6	11.8	11.3
TCPU	5.2	4.5	5.1
Wholesale Trade	6.4	5.3	4.7
Retail Trade	19.7	17.7	18.9
FIRE	7.8	11.4	5.8
Services	26.1	28.9	25.3
Government	<u>12.6</u>	<u>12.4</u>	<u>16.7</u>
	100.0	100.0	100.0

Notes: (1) Arizona Dept. of Eco. Sec. 1990

(2) Regional Economic Information System, Bureau of Economic Analysis, 1989

(3) ADES, Labor Market Statistics, 1990

TCPU = Transportation, Communications and Public Utilities.

FIRE = Finance, Insurance and Real Estate.

## Mesa

Economic activity in Mesa has involved a diversified mix of industry that has helped to sustain growth even during periods of economic recession. Much of this growth and expansion has resulted from the location of many national and regional offices of major corporations within the City. Table 1I depicts the percentage of employment within the standard industrial sectors for the City of Mesa. The civilian labor force has grown at an annual rate of 4.5 percent in the past nine years.

There are nine companies within the Phoenix metropolitan area that account for 95 percent

of the high technology employment in the area. These companies (Loral, Allied-Signal Aerospace Company, Bull, Honeywell, Tally, Motorola, McDonnell Douglas Helicopter Co., Intel and Digital) employ 53,314 personnel with approximately 15 percent located in Mesa. The total economic impact of the nine companies (payroll, purchases taxes paid, utilities and local contributions times a multiplier of three) is approximately 12 billion dollars. <sup>(5)</sup>

As indicated in Table 1I, Mesa's labor force is nearly the mirror image of the County's with one exception: Mesa employs a higher percentage of its labor force in the Manufacturing sector than either the County or the State.

## PER CAPITA INCOME

Per capita income in Maricopa County has maintained a level above that of the state of Arizona for the past ten years, averaging approximately 104 percent of the State average per capita income. Table 1J compares per capita income for the county and state since 1980, with comparisons of the County and State with the national per capita income average. Both the State and County's per capita income have been on the decline as a percentage of the national average for the past four years. This is probably a reflection of the impact of the current recession, although the variance in population figures between the state and federal government may contribute to the decline as well. However, per capita income within both the State and County has continued to grow in spite of the recession and other economic problems the State has experienced. The outlook is positive that during the recovery from the recession predicted by the State's economists, the per capita income will continue to rise as well.



TABLE 1J  
Per Capita Personal Income Comparisons 1980-1990  
Mesa-Falcon Field

<u>Year</u>	<u>Per Capita Maricopa County<sup>(1)</sup></u>	<u>Percent of National</u>	<u>Per Capita Arizona</u>	<u>Percent of National<sup>(1)</sup></u>
1980	9,715	102	9,172	93
1981	11,234	103	10,094	92
1982	11,551	101	10,312	90
1983	12,474	103	11,053	93
1984	13,567	103	13,012	95
1985	14,582	105	13,992	94
1986	15,312	105	14,687	91
1987	16,064	104	15,410	88
1988	16,815	102	16,115	87
1989	17,705	101	16,965	87
1990	18,590	100 <sup>(2)</sup>	16,297 <sup>(3)</sup>	88 <sup>(3)</sup>

SOURCE: Regional Economic Information Systems, Bureau of Economic Analysis, June 1990

NOTES: <sup>(1)</sup> Percent of National Per Capita Income.

<sup>(2)</sup> Projections by Coffman Associates.

<sup>(3)</sup> Projections are based on 1990 U.S. Bureau of Census population counts.

## AIRPORT REVENUES AND EXPENSES

A summary of the historical revenues and expenses for the past five fiscal (July 1 through June 30) years at the airport is provided in Table 1K. The airport is

managed as one of the City's enterprise funds and is separately accounted for in the City budget process. The Airport Department is established under the Assistant City Manager's responsibility within the City of Mesa.



TABLE 1K  
Airport Historical Revenue and Expenses  
Mesa-Falcon Field

	FISCAL YEARS				
	<u>1986-87</u>	<u>1987-88</u>	<u>1988-89</u>	<u>1989-90</u>	<u>1990-91</u>
<b>REVENUE</b>					
<u>Operating Revenue</u>					
Miscellaneous	\$9,138	\$9,165	\$603,432	\$6,659	\$14,396
Fuel Sales	83,692	67,831	55,445	64,360	68,756
Champlin Museum	12,699	15,288	19,076	20,419	18,080
Hangar Rental	371,985	393,420	432,550	524,349	526,082
Land Leases	352,512	373,214	361,651	377,814	388,726
Building/Office Rents	11,448	11,427	11,506	13,797	14,487
Tiedown Fees	133,750	127,068	115,119	91,776	90,659
Terminal Building Fees	3,540	3,861	6,104	23,124	1,732
Miscellaneous Rents	6,000	12,517	6,065	7,193	14,000
Gain or Sale of Property	1,675	2,690,246	1,000	0	0
Sub-Total	\$986,439	\$3,704,037	\$1,611,948	\$1,129,491	\$1,136,918
<u>Non-Operating Revenue</u>					
Interest	\$0	\$0	\$0	\$1,565	\$4,125
<b>TOTAL REVENUE</b>	<b>\$986,439</b>	<b>\$3,704,037</b>	<b>\$1,611,948</b>	<b>\$1,131,056</b>	<b>\$1,141,043</b>
<b>EXPENSE</b>					
<u>Operating Expense</u>					
Apron Area Maintenance	\$131,093	\$117,848	\$126,211	\$105,871	\$125,508
Hangar Area Maintenance	48,451	47,993	58,708	60,267	58,879
Runway and Taxiway Maintenance	25,233	28,393	37,710	19,597	19,441
Terminal Building Maintenance	63,680	62,062	74,298	58,885	61,467
Other Operations and Maintenance	51,254	57,816	42,889	41,501	40,539
Administration	280,783	288,692	242,031	202,871	235,358
Overhead	137,646	106,522	95,730	91,414	87,177
<b>TOTAL OPERATING EXPENSES</b>	<b>\$738,140</b>	<b>\$709,326</b>	<b>\$677,577</b>	<b>\$580,406</b>	<b>\$628,369</b>
<b>OPERATING INCOME (LOSS)</b>	<b>\$248,299</b>	<b>\$2,994,711</b>	<b>\$932,371</b>	<b>\$550,650</b>	<b>\$512,674</b>



## CLIMATE

Weather conditions play an important role in the planning and development of an airport. Temperature is an important factor in determining runway length. Wind speed and direction are used in determining optimum runway orientation. The percentage of time that visibility is impaired due to cloud coverage is a major factor in determining the need for navigational aids and lighting.

Mesa is located in the east Salt River Valley at an elevation of approximately 1,200 feet. The Superstition Mountains about 15 miles to the east, rise to as much as 5,000 feet. Red Mountain, northeast of the airport, rises to a height of 3,312 feet. The valley, supports large acres of cotton, citrus and other agriculture along with a large urban population.

Temperatures range from very hot in summer to mild in winter. Many summer days will exceed 110 degrees. The mean maximum high temperature at Mesa-Falcon Field is 105 degrees and normally occurs in July. Annual precipitation is only approximately seven inches and afternoon humidities range from 30 percent in the winter to 10 percent in the summer. Usually the break in the high temperatures and dry conditions occurs at two periods during the year: during the late summer monsoon season when moist air from the south and southeast flows into the valley and during the winter when rain falls from Pacific storms.

The valley is characterized by light winds. High winds are associated with thunderstorms that occur periodically during the summer. Persistent 30 miles per hour (mph) winds or more are rare except for two or three events in an average spring due to Pacific storms. Winter storms rarely bring high winds due to the stable air mass over the valley.

The U.S. Weather Bureau does not tabulate wind or weather data for the airport. The wind data for Mesa-Falcon Field was derived

from two sources: Phoenix Sky Harbor Airport and Williams Air Force Base. Both wind roses, depicted on Exhibits 1H and 1I, tabulate 95 percent coverage of the 12 and 15 mph windspeeds (12 mph for aircraft in the general utility category, small single engine and twins; 15 mph for large aircraft in the transport category) on Runway 4-22.

## EXISTING LAND USE

The City of Mesa General Plan was adopted by the City Council in 1988 following a series of public hearings and workshops. The City has adopted four central themes considered critical to the City's future:

- ♦ Mesa is a "maturing" city
- ♦ Mesa must adopt and pursue an aggressive economic development strategy if it is to maintain its presence in the region's economy.
- ♦ The City must be sensitive to the needs and desires of the numerous and varied neighborhoods.
- ♦ The Plan must remain flexible to allow for future changes in policy, technology and lifestyles.

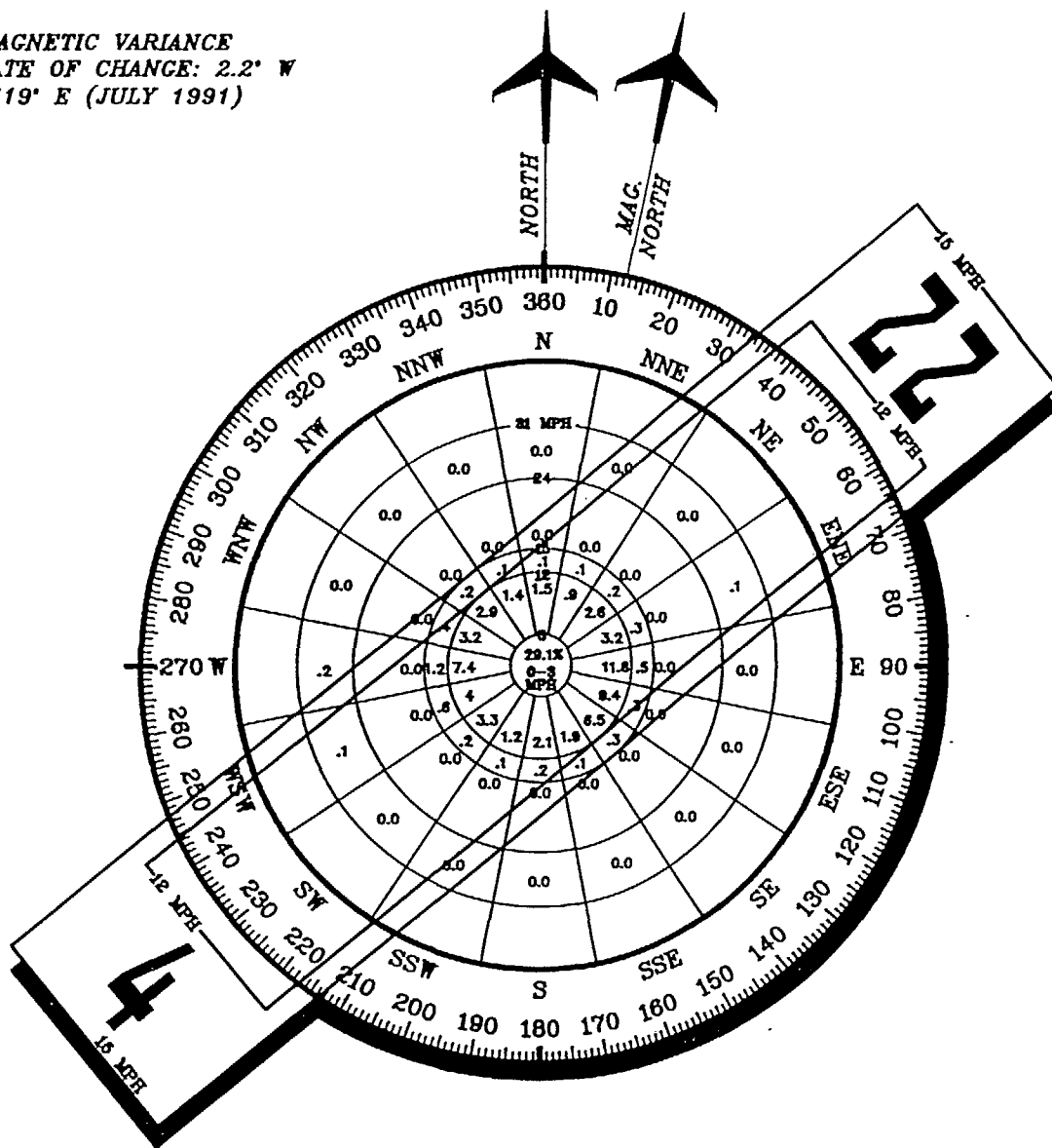
The land use plan recognizes ten categories of land use which include residential (four categories), commercial (five categories) and general industrial. Additional recommendations regarding land use and potential noise impacts are contained in the Eastside Land Use Study (a study of aircraft noise impacts within the east valley) and the Mesa Freeway Corridor Study.

All of the land immediately surrounding the airport is under the jurisdiction of the City of Mesa. The existing city limits extend to the Salt River Indian Reservation boundary one mile north of the airport, approximately three miles to the northeast to the Tonto National Forest boundary, approximately 8 miles to the



91MP04-1H-8/16/91

**MAGNETIC VARIANCE**  
**RATE OF CHANGE: 2.2° W**  
**12°19' E (JULY 1991)**



**SOURCE:**

NOAA National Climatic Center  
 Asheville, N.C.

**DATA STATION:**

Phoenix Sky Harbor Airport  
 Phoenix, Arizona

**OBSERVATIONS:**

48,102 Observations  
 1948-1978

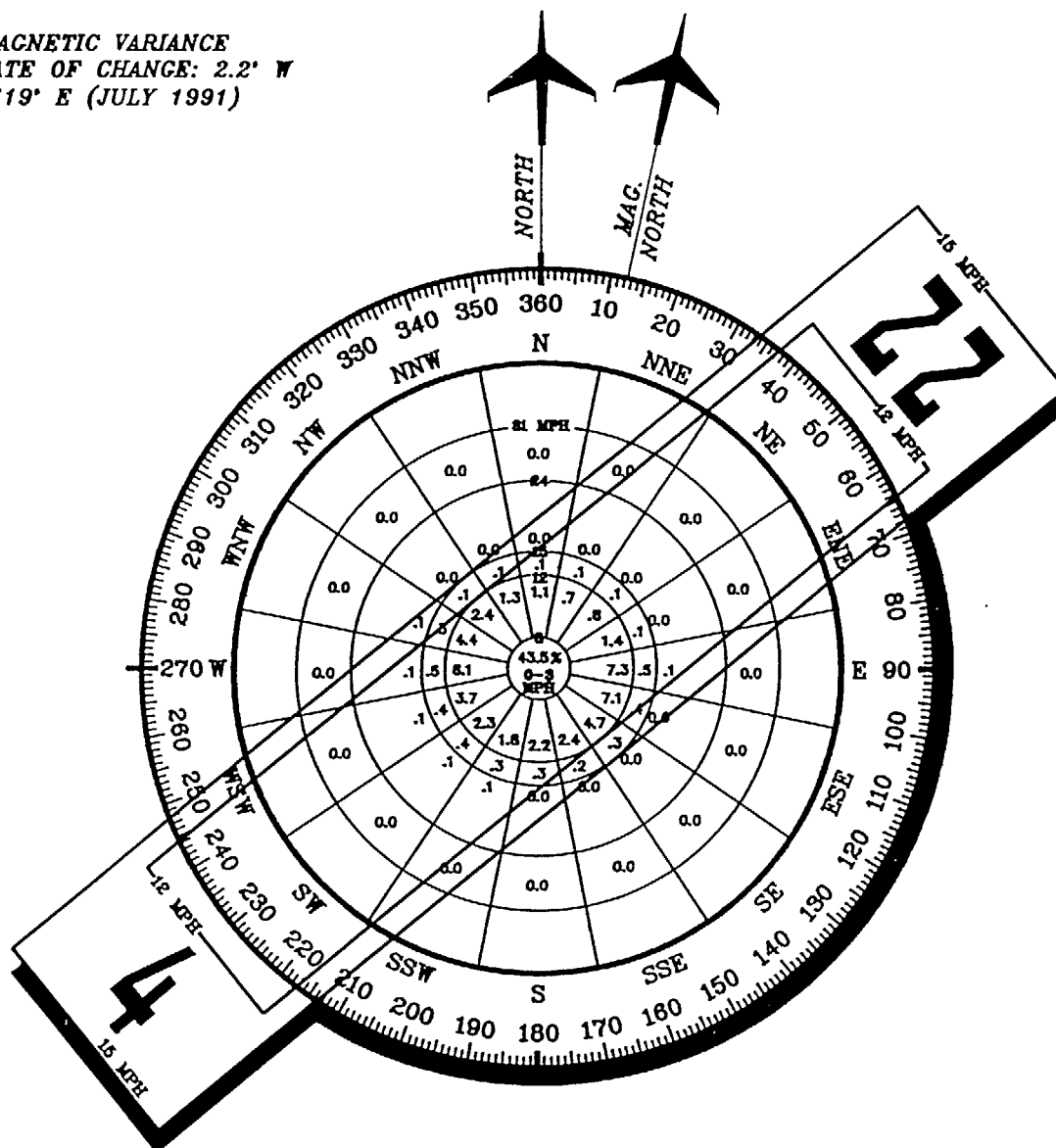
**WIND COVERAGE**

	12 MPH	15 MPH
Runway 4-22	98.22%	99.64%

**MESA-FALCON FIELD**



MAGNETIC VARIANCE  
RATE OF CHANGE: 2.2' W  
1219' E (JULY 1991)



SOURCE:  
USAFETAC  
Air Weather Service (MAC)  
DATA STATION:  
Williams AirForce Base  
Mesa, Arizona  
OBSERVATIONS:  
53,403 Observations  
1976-1986

### WIND COVERAGE

	12 MPH	15 MPH
Runway 4-22	98.02%	99.88%

MESA-FALCON FIELD



southeast to the Maricopa/Pinal County line, six miles south to the city limits of Gilbert and approximately 10 miles east to the city limits of Tempe.

The proposed Red Mountain Freeway will pass north of the airport between Thomas and McDowell Roads, as indicated on the existing land use exhibit (Exhibit 1J). The construction timeframe for this freeway is presently planned after the year 2000.

The City has adopted the Falcon Field Land Use Compatibility Guidelines within the general plan. In a report prepared in March 1983, the Falcon Field Land Use Compatibility Guidelines outlined the land uses recommended in an area around the airport that encompassed the 60 Ldn Noise Contour produced from the study of aircraft noise projected for the airport and Accident Potential Zones (APZ). APZ's were established by the United States Air Force to indicate the potential for aircraft accidents within the vicinity of a military airport based upon historical experience. Also included within the guidelines were height restrictions on objects constructed within the Federal Aviation Regulation (F.A.R.) Part 77 imaginary surfaces established for the airport.

The existing land use, as depicted on Exhibit 1J, illustrates the significant development that has taken place around the airport in recent years. This development has brought with it a mixture of land uses which could influence, both positively and negatively, the future growth of the airport.

To the north of the airport property, the land is in aviation-related land use (the McDonnell Douglas Helicopter Company) and industrial use. To the northwest, just east of the canal, a low density residential unit is under development. Agricultural land use exists between the residential area and Greenfield Road.

Adjacent to airport property (west of Greenfield Road), another low density

residential development is under construction. Southwest of the airport, industrial land use and/or vacant land exists from the Greenfield/McKellips intersection to the public baseball park (Gene Autrey Park ). Further to the southwest are homes located on large acreages.

To the south of the airport vacant land and industrial use is predominate for approximately one half mile south and then single family residential is the dominant land use. Southeast of the airport the land is vacant for less than a quarter of a mile and then residential (the planned residential area known as Alta Mesa) land use predominates. Two public schools and a golf course also exist in this area.

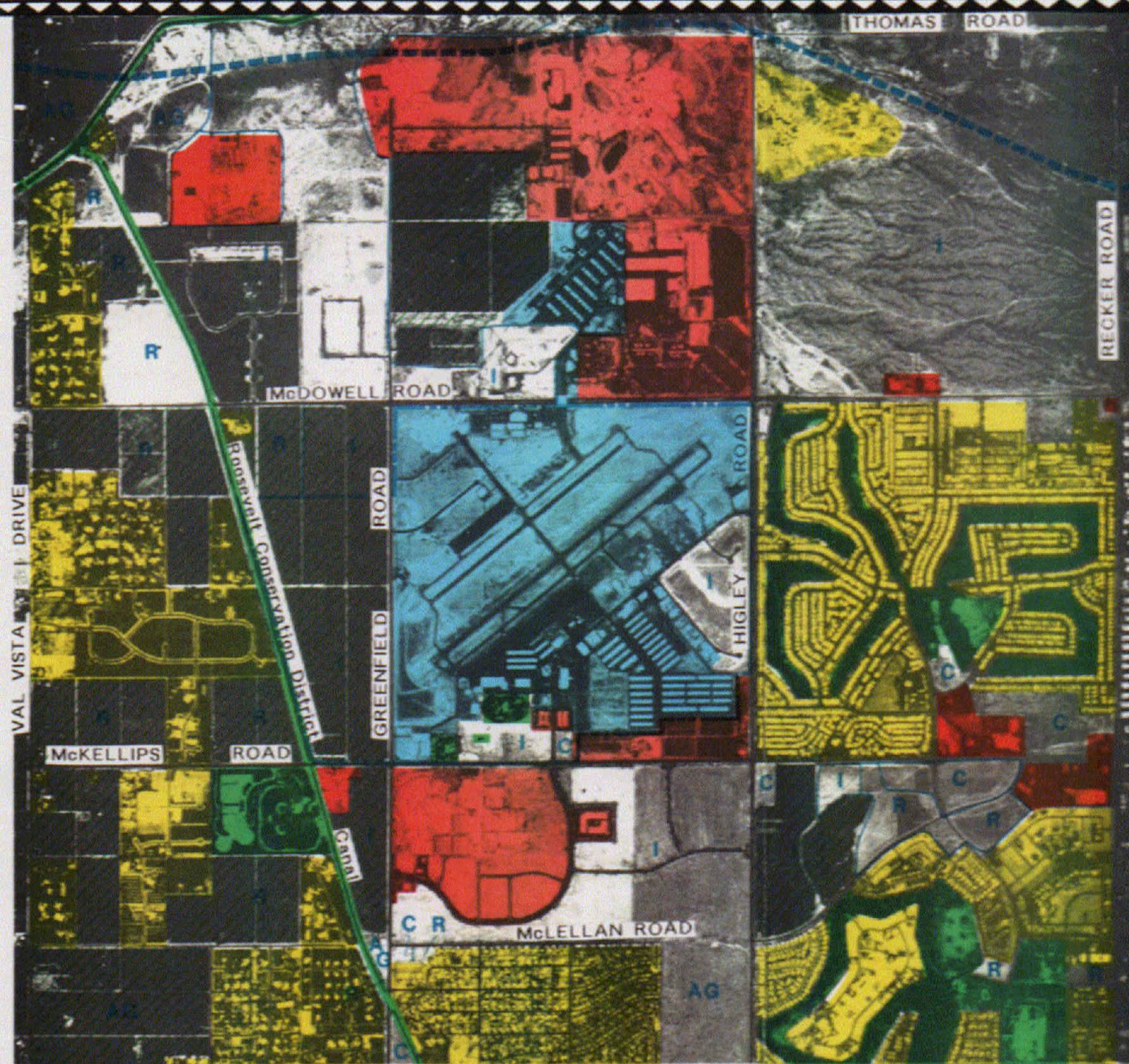
To the east of the airport, beginning at Higley Road, the planned residential community of Apache Wells is located. This residential unit has mixed residential use from mobile homes to single family residences. Some of the homes are located near the golf course that is located within the planned community.

Northeast of the airport the land is predominantly vacant except for a small residential area in the northwest corner of this section of land. Another planned residential community, Red Mountain Ranch, is located approximately 2 miles northeast of the airport. This completes the discussion of existing land use in the vicinity of Mesa-Falcon Field, which is illustrated on Exhibit 1J.

## SUMMARY

The information discussed in this chapter provides a foundation upon which the remaining elements of the Master Plan will be constructed. Information on current airport facilities and utilization serve as a basis, along with additional analysis and data collection, for the development of aviation forecasts, demand/capacity analysis and facility needs



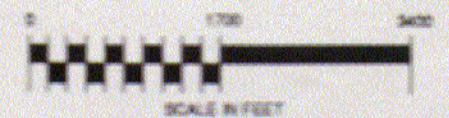


**LEGEND:**

- RESIDENTIAL
- COMMERCIAL / INDUSTRIAL
- PUBLIC
- AVIATION USE
- AGRICULTURE

**VACANT LAND ZONING**

- AG - Agriculture
- C - Commercial
- I - Industrial
- R - Residential
- Airport Property Line
- Proposed Red Mountain Freeway



**MESA-FALCON FIELD**



evaluations. This information will, in turn, provide guidance for the assessment of potential changes to aviation facilities or procedures necessary to meet the goals identified in the planning process.

The inventory of existing conditions will provide a basis for the development of both short-term and long-term user needs, and the plans necessary to achieve those needs.

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1. **FALCON FIELD AIRPORT MASTER PLAN**, Johannessen & Girand, 1973
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7. **Runway Construction and Related Improvements at Falcon Field, Mesa Arizona**, Final Environmental Impact Statement, March 1982.